VIRGINIA WILDLIFE

DECEMBER 2000 ONE DOLLAR

Director's Column

William L. Woodfin, Jr

It's often said that as we get older, the years seem to get shorter. That really is the case, because this past year has just flown by. It seems like only yesterday that we were concerned with Y2K issues and how we would fare as we began the new century. But it seems that we made it through that time of some uncertainty in good fashion and in another month or so, we will bring an end to the year 2000. Whether we believe that the millennium started last January 1, 2000, or starts this January 1, 2001, the Virginia Department of Game and Inland Fisheries is looking to the future with a lot of anticipation.

Left to right: J. Carson Quarles, VDGIF Board Chairman, Raymond Davis, Dr. Virgil Kopf and Rebecca Wajda, VDGIF.

Our Department was just named the winner of the 2000 Governor's Technology Award in the state agency category for its cutting edge implementation of digital signatures and electronic forms. Secretary of Technology Donald W. Upson presented the award at the Commonwealth of Virginia Information Technology Symposium. The Governor's Technology Awards are presented for excellence in using technology to deliver services, increase productivity, make business processes more efficient and make Virginia a better place to live. The Department has the only fully operational, digital signature/electronic forms implementation in the Commonwealth of Virginia. Secretary of Natural Resources John Paul Woodley, Jr. said, "Here is a partnership that uses the best of technology to support natural resources. The effectiveness of game wardens, wildlife and fisheries biologists will be significantly enhanced with these tools of modern technology."

Along with making use of innovative technology advances, the Department is delivering programs that embody Governor Jim Gilmore's environmental education initiative "Virginia Naturally 2000" which he introduced in his State of the Commonwealth address last January. Virginia Naturally 2000 is designed to promote life-long learning about Virginia's environment and stewardship of the Commonwealth's natural and historic resources.

This past year, the Department offered to all Virginians programs like Becoming an Outdoors-Woman, Virginia Outdoors Program, Wild For Wildlife Days, Boating Safety Education, Hunter Education, the Governor's Angling Extravaganza, and many more. These programs are designed to teach outdoors skills that will bring a greater appreciation of Virginia's natural resources. Building on the success of these programs the Department will be furthering its mission to create additional opportunities for recreational enjoyment of the outdoors. Throughout the year, we will be promoting upcoming events that you can learn about through *Virginia Wildlife* magazine or the Department's web site at **www.dgif.state.va.us** or by calling 804-367-9369.

It's also at this time of year that you may be looking for the perfect gift for the outdoors person in your life. If that's the case, then you may wish to consider broadening their outdoor skills and experience with one of our programs. Another great gift that gives a lifetime of memories and enjoyment in the outdoors is a lifetime hunting or fishing license. As the holidays approach and we find ourselves on the water or in the woods, please remember to be responsible, be safe and have fun!

From all of the staff at the Department of Game and Inland Fisheries, we hope you have a Joyous Holiday Season and a very Happy New Year. We sincerely appreciate your support of the work that we do and your stewardship efforts on behalf of our wildlife resources.

Mission Statement

To manage Virginia's wildlife and inland fish to maintain optimum populations of all species to serve the needs of the Commonwealth; to provide opportunity for all to enjoy wildlife, inland fish, boating and related outdoor recreation; to promote safety for persons and property in connection with boating, hunting and fishing.

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VIRGINIA WILDLIFE

Cover: Red-tailed hawk *(Buteo jamaicensis)* ©Dwight Dyke.

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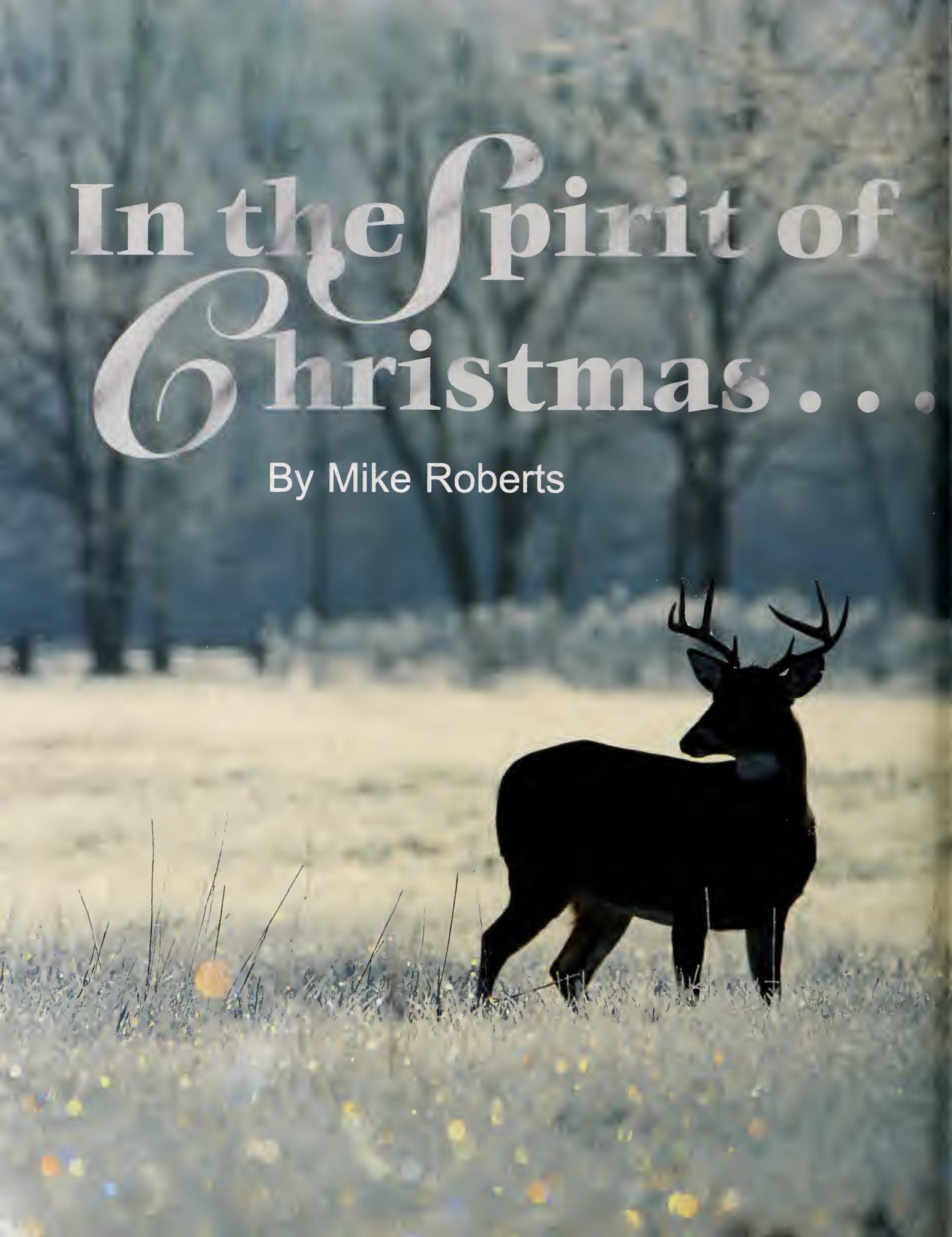
Dedicated to the Conservation of Virginia's Wildlife and Natural Resources

VOLUME 61 NUMBER 12

In the Spirit of Christmas . . .

By Mike Roberts



Unfortunately, the time-honored tradition of sharing Christmas cards seems to have been somewhat forsaken as of late, diluting a portion of the magic associated with this joyous, holiday season. For as long as I can remember, winter scenes and poetic verse expressed a genuine concern for the well-being of family and friends alike. Certainly the price of cards has increased significantly, and postage rates are quite a bit higher, but they are such feeble excuses for neglecting those special people who make our lives more pleasant. Perhaps the deterioration of this custom is the result of a society that has forgotten the worth of a good neighbor. This is not to say that friendship is any less important today, or that the value of Christmas has diminished. Things change!

Many years ago I received an unusual Christmas card which, to this day, reminds me that personal priorities need occasional review. This particular card lifted my spirits at a much-needed time and in a most unexpected manner. But, after all, isn't that what Christmas cards are for?

The single strand of hope that permanently bound the loving relationship between my daughter and me was our mutual appreciation of the great outdoors—even through times of divorce and separated lives. Whenever time permitted, travel was along back roads that offered the best opportunity for observing birds. Even as a youngster, Christin was no rookie birdwatcher. In fact, she had chalked up an impressive avian life list while accompanying me to Alberta, Montana, and Wyoming several times.

One Sunday morning, more Decembers ago than I care to recall, Christin suggested that we drive to a harvested cornfield bordering the sycamore-lined banks of the Staunton River. This had long been one of our favorite locations to visit because of the abundant waste grain that attracted a host of migrant waterfowl. But, quite honestly, I had no desire to go. Having sacrificed opening week of Virginia's deer season for an elk hunt, my disposition had been wrecked by six days of Chinook winds howling across Montana. Unseasonably warm temperatures had melted both the snow and the yearlong dream of a big bull. As if to pour salt in the wound, on the last day of the hunt I walked past the lodgepole pine sapling that had somehow stepped in front of a handsome, five-pointer just one year earlier. That ragged scar of dripping resin was painfully reminiscent of my miserable luck regarding one of North America's most desirable game animals.

Arriving home, things got worse. Those winds that had plagued me the previous week jet-streamed into the Commonwealth, spoiling my remaining three days afield. The run of successfully taking a good white-tailed buck each year was about to terminate. There would be no end to the ribbing from Phil Davis, who, as a friend, had agreed to take care of the deer hunting while I was off chasing elk. Seeing the antlers of his opening day, eleven-point buck was proof he had done just that.

While my mood left a lot to be desired, I felt it was in Christin's best interest that we take the morning ride. So, armed with binoculars and high hopes, we headed for the one place that seldom disappointed us.

Soon it became apparent that an approaching weather system had wildlife on the move. A few miles from our destination, we spotted a handsome whitetail buck standing just inside a hedge of honeysuckle and greenbrier, no more than 80 yards off the highway. A closer look at his antlers revealed an unusual absence of brow tines, but mass and tine length more than made up for any shortcoming. The buck held his position as if he understood the purpose of the posted signs sporadically spaced along the fence. With smiles and a customary hand-slap, we pulled away.

Crossing the bridge at Long Island, Christin pointed to a female belted kingfisher sitting on a high-voltage wire over the river. Brilliant cardinals and rustic sparrows flushed from beneath the machine-mangled rows of last summer's corn crop as we drove along the adjacent roadway. From high in a dead oak near the barn, a red-tailed hawk stared at the weed cover below in hopeful expectation of a careless cottontail or mouse. Mourning doves, fully feathered in winter attire, flushed from alongside the road, where they had searched for tiny bits of grit and gravel. However, the drain ditches and shallow ponds were void of the colorful wood

Sometimes the best gifts are those of cherished memories that will last a lifetime.

©Bill Lea

ducks we had hoped to see. Obviously, they were basking in the flooded timber on one of the nearby beaver ponds. Even the resident flock of wild turkeys, that so often left the security of the hardwoods to feed, was nowhere to be seen.

A concrete slab spanning the river on the opposite side of the island signaled an end to our planned route. As always, Christin nodded in agreement at my recommendation of looping back for a second look. Just then, we simultaneously spotted a pair of large birds winging their way across the field. Stopping the vehicle, I grabbed my binoculars and focused. With all the excitement of a kid on Christmas morning, I yelled, "Snow geese!" The both of us practically jumped out of the truck to watch their aerial navigation.

There was no mistaking the one pure-white, adult goose whose ebony-tipped primaries flapped in perfect rhythm with those of the other gray, immature bird. The two geese passed over the field a dozen times or more in ever-tightening circles. Twice they attempted half-hearted landings, but each time pulled up short to again climb for the heavens. After one final fly-by, the birds caught a wind of their liking and, upon gaining proper altitude, set a course upriver. Without breathing a word we watched until they disappeared from our sight.

Turning toward Christin, I saw the smile on her face as she stared through the binoculars for one last look. Only then did I realize what had just taken place. Over the years, and through the many miles traveled, it had been my misfortune to have never seen a snow goose. As often as I had visited Montana during autumn, their sweeping migration flights had occurred either just before my arrival or soon after my departure. Shamefully, I had not even witnessed the thousands that annually wintered in the refuges along the Eastern Shore of Virginia. At last, and in the company of my daughter, I had identified my first snows. But why had our paths finally crossed in such an unlikely place?

Pondering the question, an answer promptly came to mind. Within a few miles of where Christin and I were standing, the Staunton had provided me so many first-time outdoor experiences. Thoughts drifted back to a cold, December day and a flock of ducks that exploded in a spray of confusion 20 yards upstream from where I sat camouflaged in a makeshift blind. Within minutes I had retrieved my first ever pair of mallards from the icy river, and was surprised at the aluminum band adorning one of the drake's bright orange legs. Months after corresponding with the U.S. Fish and Wildlife Service, I received a letter explaining that the band had been crimped in place six years earlier by a Canadian biologist.

One duck hunting memory only served to stir another. There was the frosty January morning that Phil Davis and I agreed hot chocolate was in order to toast our successful shoot prior to the hike back to the vehicle. Leaning my shotgun against a fallen birch, I politely offered to pour. While twisting the top off the steaming thermos, whistling wings diverted my attention from the impromptu celebration to a pair of ducks flying just above the narrow slough's canopy of limbs. Long, trailing tail-feathers helped identify the first pintail drakes I had ever seen on the Staunton, or anywhere else for that matter. Unaware of our presence, they continued upriver—safe from harm's way. Needless to say, that was the last

Red-tailed hawk, ©Maslowski Photo

hot chocolate we ever carried on a duck hunt!

The memories continued to flood my mind. During the mid-70s, Ernie Davis and I tried our hand at trapping the abundant muskrat, beaver, and raccoon that claimed this same stretch of river as their home. That adventure opened the door to a fantastic wildlife education, which would continue for many winters to come.

Wisely, we always waited until duck season closed to run our line of muskrat traps along the river, because stealing traps was a favorite activity of some people. One late-winter afternoon, while down on my knees checking a den site, it was as though a sixth sense caused me to look up. Sailing down the river, at treetop level, was a magnificent, mature bald eagle. That rare glimpse of America's endangered national symbol was a sight to behold!

And never to be forgotten are those fish that first introduced themselves from the waters of the Staunton. Why I can still feel the surge of power as 12 pounds of striped bass engulfed my floating Rebel and tore out downstream toward Brookneal. The same can be said of a four-pound walleye that inhaled a white bucktail bouncing along the rocky bottom of a nameless pool. There was the flathead catfish, dipped in autumn gold, that fell prey to the tiny Rapala, and the citation-sized pickerel with black chains painted across flashing green and gold sides.

All at once Christin grabbed my arm yelling, "Look Daddy," and I mentally slammed the door on the past. The geese had returned to the island. Without a hint of hesitation, they set their wings and pitched down amidst the cornstalk stubble. Upon landing, they nervously surveyed their surroundings, only to relax outstretched necks and begin feeding. After watching for the longest time we slowly drove off, leaving the birds undisturbed. At that very moment I knew those snow geese would forever be etched against the gray, winter skies of my memory.

For some strange reason, I now felt at ease with myself. No longer did it matter about a self-fabricated reputation of trophy elk or deer. Seems Mother Nature, out of kindness, had brought me back to the river to present this living Christmas card. Perhaps it was her subtle way of reminding me that the outdoors is a place to explore and enjoy—not keep score. Then, too, I remembered, for the first time in years, Christmas would be spent at home with my family and friends. Although far from spruce basins and bugling bull elk, Virginia is home, and home is the best place to be for the holidays.

Everyone has a personal wish of joy and peace at Christmastime. In 1987, mine was for good fortune to follow that pair of snow geese wherever their travels took them. I recall saying aloud, "Fly high, my friends!" □

Mike Roberts is an outdoor writer and photographer. He is also Executive Director of "Return to Nature," an education outreach program that explores Virginia's natural and wildlife resources. For more information about Return to Nature, call (804) 847-4671.

Background photo: *Snow geese, ©Mike Roberts*

The Clin

A Biological T

by Michael J. Pinder

Located in southwestern Virginia, this unique river is one of the most diverse small water systems in the United States.

Riches beyond your imagination are waiting for you in the mountains of southwestern Virginia. However, before running to plunder this fortune, you should know that it is not money, gold, or diamonds. On the contrary, it is something much more valuable. The treasure is the wealth of aquatic organisms that call Southwest Virginia home. The biological treasure chest securely housing these valuables is the Clinch River.

The Clinch River originates in eastern Tazewell County and flows southwest 156 miles before crossing the Virginia border 20 miles west of Kingsport, Tennessee. It joins the Tennessee River west of Knoxville, Tennessee. Eventually the Tennessee River joins the Ohio River and then the Mississippi River, which flows into the Gulf of Mexico. In Virginia, the total land area from which the Clinch River drains, also known as its watershed, is 1,258 square miles. All or portions of five Virginia counties are within this watershed.

The Clinch River has sculpted a channel through 70-million-year-old mountains that once rivaled the Rockies in size. Although now a mere whisper of their former self, the sandstone-capped ridges that rise over 3,000 feet are still impressive. Compared to the rugged mountains, the valleys are primarily composed of soft limestone that has been slowly dissolved, making countless caves and sinkholes. Numerous clear springs, rich in calcium carbonate and other minerals, emerge from the ground throughout the drainage.

On its journey the clear, warm waters of the Clinch River gently meander along banks lined with boxelder, ash, and sycamore. Lush

©Nature Conservancy

patches of water willow flourish in the shallows. Churning, fast flowing rapids that oxygenate the river separate long, slow moving pools. The river bottom is covered with a colorful mix of boulders, cobble, gravel, and sections of bedrock.

Underneath its surface, brightly colored fish dart about, crayfish surrey for shelter, giant salamanders hide under boulders, and freshwater mussels protrude like rocks from the stream bottom. Over the course of millions of years, the Clinch River has provided the right conditions for these animals to evolve and flourish. The Clinch River is one of the most diverse small systems in the United States where many species are found nowhere else on earth. Biologists around the world recognize it as an ecological treasure trove.

Freshwater mussels are a group in which the Clinch River is particularly wealthy. Nearly 20 percent of the mussel species known in the United States are found in the Clinch River. Additionally, the Clinch River contains 45 of the 81 species known from Virginia. Mussels are mollusks and are related to snails, clams, and oysters. They come in a wide variety of shapes, colors, and sizes and have peculiar names like rabbitsfoot, pigtoe, and kidneybean, to name a few. Mussels have two shells (valves), two siphons (an incurrent and excurrent), a foot, and

__Left:__ Small valleys made of primarily soft limestone that has dissolved over thousands of years create countless caves and sinkholes along the Clinch River drainage.
__Below:__ Monte McGregor, a regional nongame biologist with VDGIF, inspects one of the many freshwater mussels found in the Clinch River. Photo by Ron Messina.

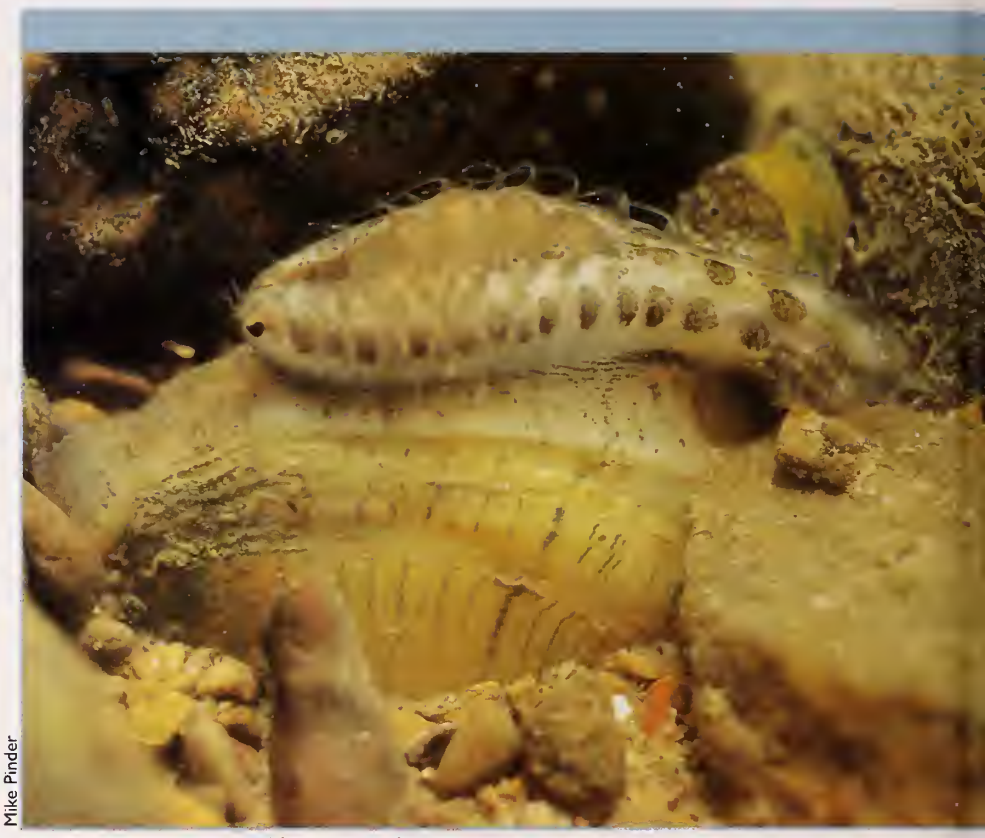
ch River
asure

©Dwight Dyke

gills. Although they can move using their large fleshy foot, they usually travel only several yards during a lifetime. Their shells are mainly comprised of calcium carbonate and covered in a thin membrane called the periostracum.

Mussels are nature's purifiers and clean the water by filtering out bacteria, detritus, and algae. Their contribution to the Clinch River is significant when you consider mussels can live over 50 years. In addition to cleaning the water, many species of fish, birds, and mammals feed on mussels. Long after the mussel is dead, the empty valves are used as egg laying sites for fish, hiding places for aquatic insects, and as attachment surfaces for plants and algae.

Similar to mussels, the diversity of freshwater fishes in the Clinch River watershed is just as outstanding. The Clinch River and its tributaries are home to 91 (76 native and 15 introduced) of the 210 species known from Virginia. While most people are familiar with gamefish species, such as smallmouth bass, walleye, and muskie, most Clinch River fish are less well known but not less important. These species range in size from the inch-long Tippecanoe darter to the ancient paddlefish that is over five feet long when measured from its long oar-like snout.



Mike Pinder

***Above:** The wavy-rayed lampmussel* (Lampsilis fasciola) *and a tangerine darter* (Percina aurantiaca) *below, are just a few of the mussel and fish species that help make the Clinch River one of the most diverse small systems in the United States.*

Noel Burkhead & Bob Jenkins

The largest groups of fish in the Clinch River are the darters and the cyprinids. Darters are like jewels that shine and sparkle in colors of red, blue, and green. They move effortlessly on the bottom in darting motions that gave them their name. The darters of the Clinch River have colorful names like tangerine, bluebreast, and redline that match their striking appearance. Although rarely reaching lengths over six inches, darters make up the second largest fish family in Virginia and are represented in the Clinch River by 16 species.

The largest group of fishes in the Clinch River, as well as Virginia, North America, and the world is the family Cyprinidae. Better known as minnows, dace, shiners, and chubs, the Clinch River has 28 species that can usually be seen in large schools around riffles and runs. These fish fill important roles in the river and are an important food source for larger creatures. One of the most noticeable cyprinids is the male riverchub that uses gravel to build a large nest mound during the spring. Besides the chub, many other cyprinid species will use his nest to lay their own eggs.

Each species in the Clinch River is dependent upon one another for its survival. Nowhere is this best demonstrated than by the relationship between freshwater mussels and fish. Soon after spawning, thousands of microscopic, larval mussels, known as glochidia, are brooded by the female mussel. When released from their mother, the goal of each glochidium is to attach to the gills of a fish. The mussel life cycle is further complicated by the fact that the young of certain mussel species will only survive on a specific fish species. In order to overcome this

hurdle, the female wavy-rayed lampmussel displays a fleshy portion of her mantle that looks remarkably like a small fish or aquatic insect. The purpose of this lure is to trick a fish (in this case a smallmouth bass) to strike, thereby allowing her young to directly attach to the desired host. If the glochidium attaches to the correct fish, it will encyst on the gill and begin to change into a juvenile mussel. In a matter of weeks, the mussel will drop off the fish and onto the stream bottom to begin growing into an adult. The fish therefore serves as a "nursery" for the early development of the mussel and a "taxi" to move away from its parent. Because only a few glochidia at any single time are attached, the fish is not harmed because of the experience. Without the fish, however, the mussel cannot complete this complicated life cycle. Overall, the fish benefits because mussels provide clean water, shelter, and food.

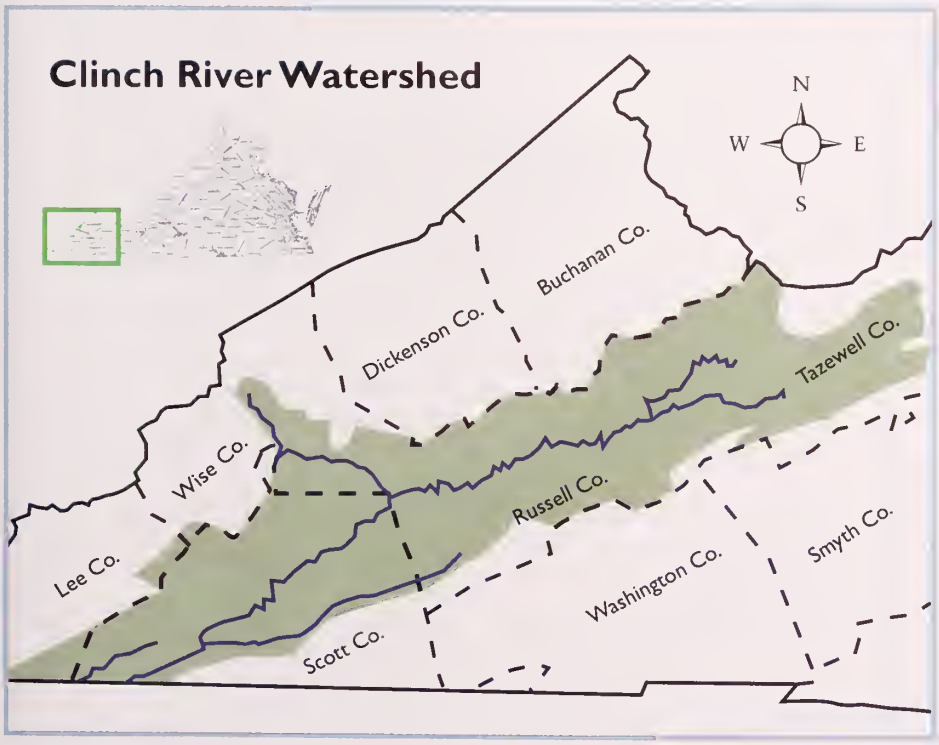
Most people, even longtime residents of the area, have never seen many of the species that comprise the wealth of the Clinch River. A person must look under its surface to truly appreciate these animals. Professional biologists use a technique called snorkeling to observe aquatic animals. Donning a mask and snorkel, kneepads, some old sneakers, and lots of suntan lotion, a person can move along the shallows and observe fish, mussels, and other aquatic animals in their natural habitats. Many fish species lose their fear of people once you come down to their level. You can watch a darter feeding on aquatic insects, a crayfish grazing algae from a rock, and a mussel displaying. As a rule, you can watch but do not touch. Because of the high number of rare and endangered species in the Clinch River, Virginia law prohibits the collection of live mussels or shells.

The loss of even one species could spell disaster for the others and diminish the wealth of this unique system. Unfortunately, many animals in the Clinch River watershed are only one step away from extinction. For example, the last known reproducing population of tan riffleshell mussel, a federally endangered species, is found nowhere else in the world except in a small stream reach of this drainage. Most of the problems are related to degraded water quality that includes chemical spills, siltation, and nutrient enrichment. Fortunately, many local, state, and federal agencies and private organizations are working closely with concerned citizens, communities, and businesses to improve these conditions. Hopes are to eventually secure the continued existence of these animals while improving the quality of life for every person that lives in its watershed.

The Clinch River holds a fortune that is unparalleled in its biological significance. No one person can own or stake a claim to this treasure because it belongs to all the citizens of the Commonwealth. However, by unlocking this treasure chest and gazing upon its riches, you will gain priceless insights to the natural world and understand why we must invest to ensure that it is protected for generations to enjoy. □

Noel Burkhead & Bob Jenkins

***Above:** Freshwater fish, like the river chub* (Nocomis micropogon), *and mussels are often dependent upon one another for their survival.*



Mike Pinder is a regional nongame biologist with the Virginia Department of the Game and Inland Fisheries' Wildlife Diversity Division.

Look Who's Stay for Dinner

by Ken Perrotte

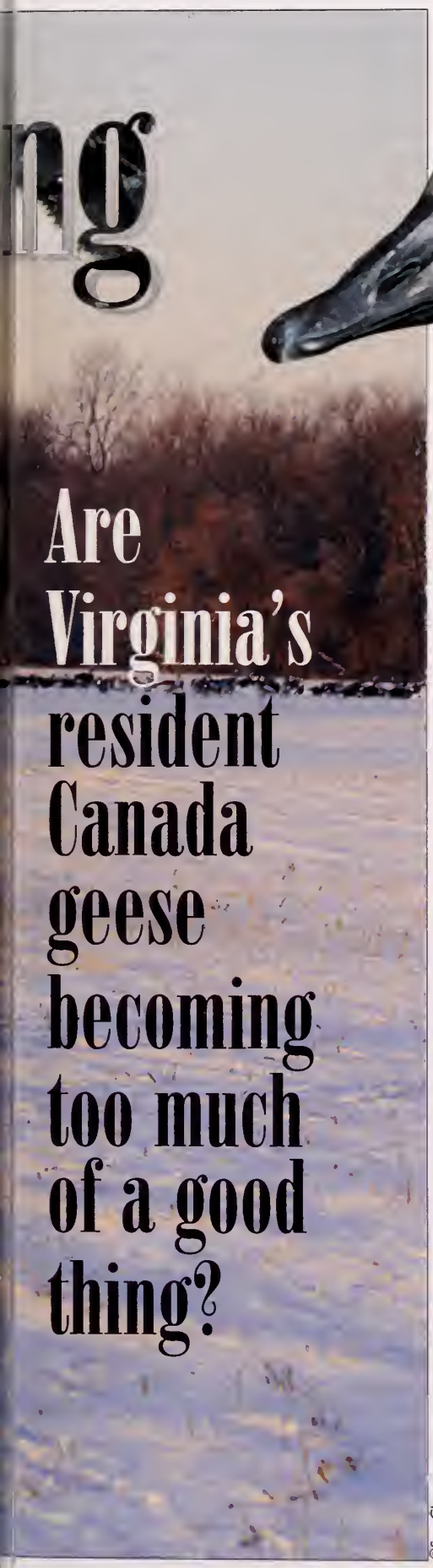
Although early February temperatures hover around the freezing mark in the pre-dawn darkness, it is easy to break a sweat deploying the logistics machine for a morning of late season Canada goose hunting in Virginia's Northern Piedmont.

Mike Manuel's blind setup is nothing short of spectacular—long sawhorses on wheels, tall cedar brush fastened to one side, hooks for hanging decoys, shelves for shot and slots for guns. He hauls the rig to the hunting site in a trailer. It's a serious operation, fine-tuned for optimum success.

With goose hunting, there is no substitute for scouting and Manuel, of Fauquier County, monitors farm fields like a bookie monitors the latest Vegas odds. He advised that a local dairy farmer had a couple of green fields hosting goose conventions. The farmer had no love loss for the honkers.

The geese don't disappoint us, arriving overhead in waves, even before we can perfect the decoy spread of more than 120 3-D, silhouette, and windsock birds.

Scrambling to the blind, the hunters quickly try to load shotguns



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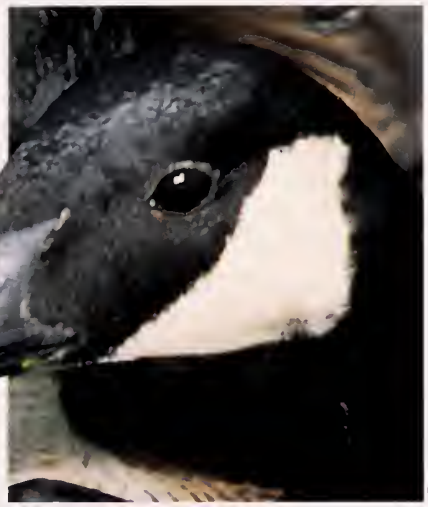
Are Virginia's resident Canada geese becoming too much of a good thing?



©Dwight Dyke

as the first flock of birds appears, flying low and directly over the blind. No one is ready for this early arrival.

John Kern, of Waldorf, Md., is a master with a goose call, coaxing the geese to circle closer. It's amazing how one guy with a piece of plastic at his lips can sound like dozens of geese simultaneously.

"Here they come. Out front. They're locked. Take 'em now!" he urges. Five shotguns roar in a volley echoing across the farm. The scene repeats itself often over the next hour as a light snow begins to fall. We each achieve our four-bird limit. While we gather the decoys and remove the blind, geese still arrive overhead by the hundreds. We shake our heads in disbelief, knowing it doesn't get any better than this for a goose hunter.

The scene repeats itself the final morning of the season at another dairy farm in Culpeper County. This farm had experienced so many geese during the year that the farmer had multiple groups of hunters in the queue. When one group limited out, he would get on the phone to advise the next group it was their turn. He plants barley for his cows, but several acres will never make it to the bellies of his bovines as hordes of geese devour the young shoots. The farmer admits enjoying a couple dozen birds on his small lake, but the thousands that descended following the big freeze of late January have long since worn out their welcome.

The Birds of Summer

Rewind to the summer of 1999.

"Hurry up! We need some help over here. They're trying to escape," yells Gary Costanzo with his arms outstretched, trying to herd a flock of 60 or so Canada geese to an area where they can be corralled. Ducks moving with the flock launch skyward away from the uncertain circumstances.

Costanzo's associates with the Virginia Department of Game and Inland Fisheries (VDGIF) do their best to arrive in time to head the critters off at the pass. Carrying lightweight aluminum frames stretching nylon mesh netting, the crew scurries quickly along sidewalks and up small hillsides slick with both the early morning dew and the byproduct of their intended quarry.

Below: *Gary Costanzo, waterfowl biologist and waterfowl project leader for VDGIF, bands a captured Canada goose for future identification. Photo by Dwight Dyke.*

For Costanzo, waterfowl biologist and waterfowl project leader for VDGIF, round-ups are designed simply to give the birds an important piece of jewelry, aluminum leg band.

Although the summer temperatures are scorching, the biologists have to follow the farmer's axiom, "Make hay when the sun shines." Canada geese molt their wing feathers toward the end of June every year, rendering them flightless for about three weeks. This window is the only time Costanzo and his band of drovers can corral them.

Migratory geese are famous for flying high overhead in that magical "V" formation, honking their leaders on to their destination, the ancestral breeding grounds of Northern Canada.

Then, there are the resident Canada geese—Canadian in name and species only. They may have had Canadian ancestors, but these geese are pure locals, having hatched here and possessing no migratory instinct. Many of them become sophisticated suburbanites, famous for mooching handouts in recreational areas or even shopping center parking lots.

Many planned communities with water, golf courses, and other venues that have attracted the homey honkers consider them a nuisance. A couple breeding pairs is considered cute, even idyllic. A very small flock can be accepted. Get 50 or more and people start saying "We have to do something."

Overpopulation, though, can mean more than a nuisance; it can present a hazard. Where large numbers of geese congregate, excessive droppings can increase nutrient loads and impact water quality. This causes concern from golf courses, to farm fields, on public water supplies and livestock ponds, and for other fish and wildlife populations using these areas.

Jerry Sims, VDGIF regional biologist for Northern Virginia, notes that geese readily adapt to areas with an urban and suburban environment.

"In Fairfax County, nearly every stormwater retention pond has a dozen or more geese on it. They congregate on school yards and flock to residential and recreational lakes," he said.

The "have to do something" feeling variously manifests itself with solutions ranging from spraying grape juice on the grass to make it unpalatable to the geese to buying and maintaining expensive border collies to harass the geese off the property.

Even though geese are considered a migratory species, federal law permits states to deal with resident populations. Contracts with private companies and individuals are allowed to control or destroy goose populations. Special harvests, with the meat being donated to food banks or other like organizations, sometimes take place.

Exotic solutions aside, many believe that hunting, which generates revenue for both the state and federal government, is the solution of choice for dealing with goose overpopulation. One of the first questions state officials ask when presented with a goose problem, especially in farm country, is if hunting geese is authorized on the property.

Several hundred geese are banded during the multi-day operation in Fredericksburg and the counties west of the city. Many are caught at the mega-shopping area known as Central Park. One storeowner comes by to see the activities and expresses the opinion that instead of banding the geese, the biologists should remove them outright. He's tired of customers tracking goose feces into the shop.

One bird in the makeshift hoosegow wears a neck collar with some lettering. The goose used to be a country bird, but appears to have joined the suburban set.

The collar is from an earlier tagging effort. Researchers with binoculars can identify the tagged goose at a distance. With the leg bands the only way to identify the particular goose is when it is recaptured or

Wildlife biologists collect data from Canada geese in the summer months. It's during this time that geese molt their wing feathers, rendering them flightless, which makes them easier to capture. Photos by Dwight Dyke.

killed. The collars can provide multiple sightings of individual birds if observers are available to report the information.

At Spotsylvania County's Ni Reservoir, two canoes herd a flock toward shore. The corral panels were pre-positioned in a wide circle near the shoreline. As the geese wade ashore, the humans, who had been laying low behind trees and vehicles, pop out, grab the panels and slowly tighten the circle.

"OK, we need a nice, well-oiled machine here," Costanzo calls out. One team is designated to handle the birds. Another grouped wields the pliers and crimps the bands loosely on the geese' legs.

Most of the geese remain calm in the enclosure. Few, though, go willingly as VDGIF wildlife professionals wade in, grab them by the backs of their wings and hoist them to face the pliers.

"We've got a biter here," comes a cry from one side of the pen. Bob Henson, a wildlife biologist assistant in the Fredericksburg Region 5 office, tells how Tommy Willingham, another employee, was holding a goose being banded and it bit him in the side.

"After the bird was released by the biologist, it ran back into the crowd, found Tommy and bit him again on the leg," Henson laughed. "It hurts, but it is funny."

Costanzo and three other biologists sit on 5-gallon buckets. As the banded birds are handed to them, they quickly flip them upside down to check their sex. Some of the geese have their head and culmen (bill) measured. The resident geese are slightly larger than migrants. They call out the readings to a recorder with a clipboard.

This information is provided to the Bird Banding Laboratory managed by the Patuxent Wildlife Research Center in Maryland. The center is a repository for information on up to 300,000 birds banded in North America each year.

Costanzo says the banding program for these resident geese will provide useful information about the birds' movements and life spans. The goal is to distinguish what is happening with these residents versus the migratory geese. He said local geese generally fly lower and are usually not as wary. Where migrants see people as danger, locals see people as potential handouts. Plus, the locals have intimate knowledge of the local area. They

Scouting before the opening of the resident Canada goose season is key to locating local birds. Farm fields are a great place to start looking, but remember to ask for landowner permission.

©Ken Perrotte

will know which farm has a cornfield five miles away, where it's good to go for water, and the best routes to travel to and from these locations.

The resident goose population in Virginia is exploding, with the last 10 to 15 years seeing dramatic, visible increases. "People are really starting to notice them," he says, estimating the Virginia numbers at 250,000 to 300,000.

The United States Fish and Wildlife Service reports that surveys suggest breeding populations of more than 1 million resident birds in each of the Atlantic and Mississippi migratory bird flyways.

More than 1,000 resident geese in the Northern Piedmont now wear the Fish and Wildlife Service's most stylish leg wear. Banding efforts don't pay off unless hunters or others who obtain banded birds report that information to the Bird Banding Laboratory. It's a toll free number, printed right on the band—1/800/327-BAND.

©Ken Perrotte

Left to right: John Kern, Rex Burfield, Mike Manuel, VDGIF Biologist Dan Lovelace, and Art Hemingway following a morning hunt in Fauquier County.

©Soc Clay

Planning a Hunt

Kern advises hunters to pay attention to the details, the decoy setup, and the blind configuration. It has to look natural. Geese on the ground feed with their heads into the wind. They also land into the wind, just like an aircraft.

"We like to set our decoys in a U-shaped pattern along the crest of a hill, with a good landing zone open in the middle for the birds flying in," Kern said. "A little motion in the decoy spread never hurts. Some decoys have paddles that spin in the wind, flags, or are made like windsocks. You can even pull strings from the blind to create movement in the decoys.

"I've found that the geese like to land on hilltops and feed down to a safe area where they can see for 360 degrees—they just seem more comfortable with that," Kern noted.

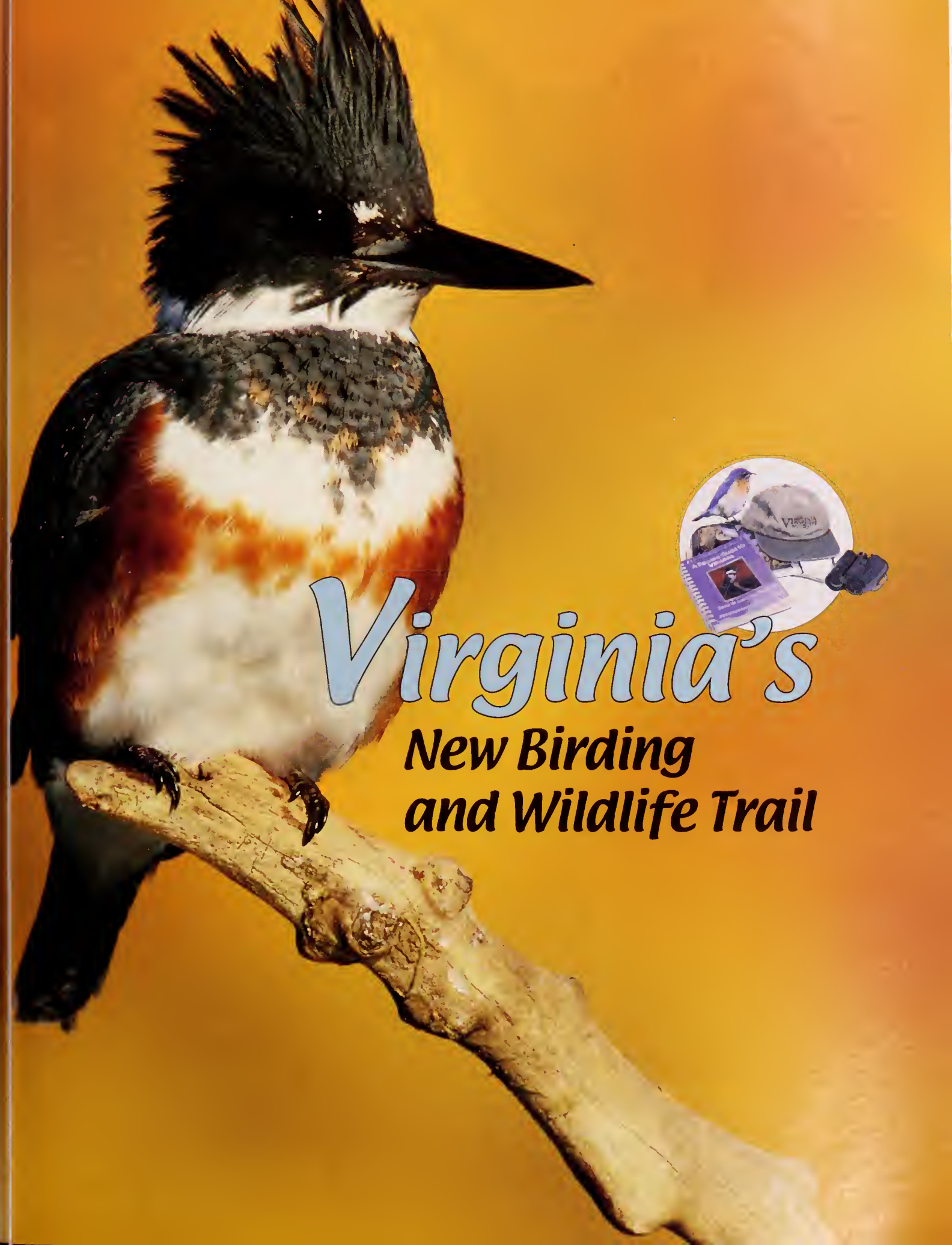
His most important piece of advice relates to scouting. "You have to be where the geese want to be," he declared. This is especially important with resident geese, which seem to have preferences for certain fields or bodies of water at varying times during the season. "Having contacts who can monitor goose activity and pinpoint which farms, fields, or water they're using can make all the difference," he said.

Hunters should try to identify locations where goose activity is likely during the hunting season and then politely ask for permission to hunt. Common courtesy and a guarantee to treat the land with respect will go a long way toward success. No farmer is going to want hunters driving across wet, soft ground, creating ruts that will last for years, just to make it easier to set up a blind and decoys.

After the hunt, leave the area as you found it. This means picking up all expended shotgun hulls and going downrange to collect every piece of wadding and shot cups that can be found. And, of course, it is always proper to ask your host if you can share any of the game with him or her once you have cleaned it.

The populations of resident geese, coupled with a slow, but seemingly steady, rebound of migratory geese, can make for some exciting hunts in Virginia's Northern Piedmont. West of Interstate 95, where the bag limits are liberal and the season long, the good old days of goose hunting may be right now. ☐

Ken Perrotte is a writer living in King George, VA. He writes the outdoor column for the Fredericksburg Free Lance-Star, *as well as outdoor articles for many other publications. When last seen, he was patiently sitting by his smoker, knife and fork in hand, waiting for a taste of goose slow cooking over the hickory chips.*



Virginia's New Birding and Wildlife Trail

by Jerry Uhlman

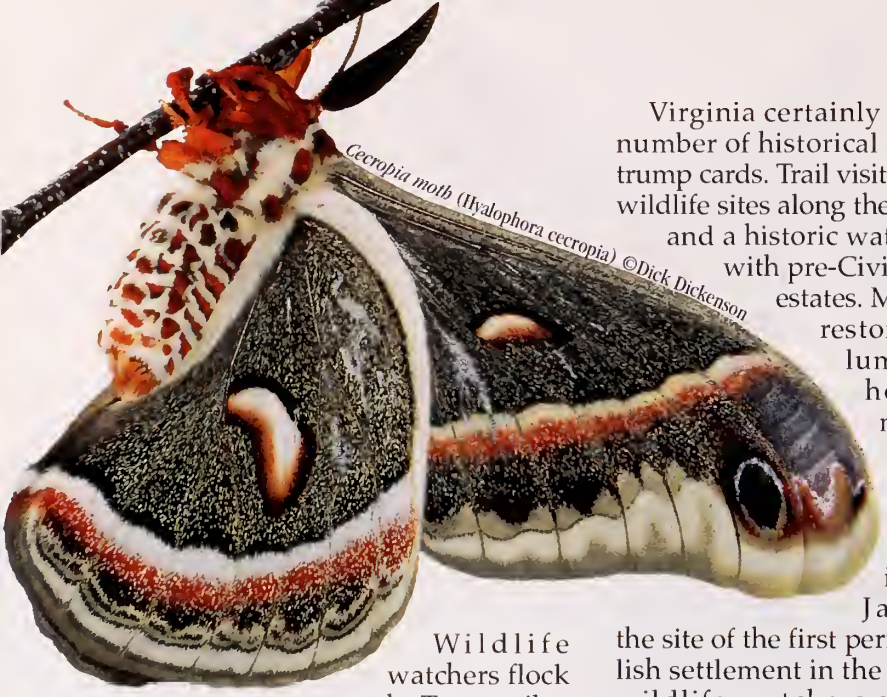
Huntley Meadows, Craney Island, Chincoteague Refuge, the Chesapeake Bay Bridge-Tunnel islands, Hog Island WMA—these are familiar names to Virginia wildlife-watchers, especially birders. These legendary hotspots, and many more lesser known natural areas, will soon be linked together to become the Virginia Birding and Wildlife Trail (VBWT).

Sponsored by the Virginia Department of Game and Inland Fisheries (VDGIF), the new wildlife trail is patterned after the very successful "Great Texas Coastal Birding Trail" that stretches along the Gulf Coast from Port Arthur to Brownsville, and northward up the Rio Grande Valley to Laredo.

The Texas trail draws thousands of wildlife watchers each year, who drive among its 308 hotspots in search of desert and tropical flora and fauna. Fermata, Inc., the primary architect of the successful Texas prototype, is assisting VDGIF with trail planning and development. Funding for Phase One of the Trail is provided by the Department of Game and Inland Fisheries, Department of Environmental Quality's Coastal Resources Management Program, and the Department of Transportation through Transportation Equity Act funds (so-called "TEA-21" monies). Monies will be used for site preparation, map development, signage, and other improvements.

Above: *Rose-breasted grosbeak* (Pheucticus ludovicianus). *©Maslowski Photo.* ***Above left facing page:*** *Northern cardinal and white-tailed deer ©Rob & Ann Simpson, eastern bluebird ©Maslowski Photo, buck-eye butterfly ©Dwight Dyke.*

© Dwigt Dyke



Cecropia moth (Hyalophora cecropia) ©Dick Dickenson

Wildlife watchers flock to the Texas trail to see as many as possible of the 611 recorded bird species in the state. And, they bring money to local economies during their travels, spending freely on food and groceries, lodging, fuel, optical gear, and souvenirs.

A wildlife trail in Virginia, patterned on the Texas model, could be a real bonanza to local communities with sites along the trail (see box for financial impact of VBWT). Communities that are wildlife-rich, but have difficulty attracting visitors could soon change their fortunes by drawing eco-tourists to their doorsteps. A single trail site could potentially benefit many local merchants.

Cultural Attractions Supplement Wildlife

David Whitehurst, VDGIF's Wildlife Diversity Division Director, who has championed the Trail's development from the start, acknowledges that Virginia's list of approximately 424 bird species (including migrants and accidentals) doesn't quite measure up to Texas. "But, here in Virginia we have a more varied landscape and diverse habitats. There's a lot of history and culture that can dovetail with our wildlife trail. People will find many unique features that will add to their enjoyment along the trail."

Virginia certainly does have a number of historical and cultural trump cards. Trail visitors can enjoy wildlife sites along the James River and a historic waterway lined with pre-Civil War manor estates. Many of these restored antebellum plantation homes have magnificent gardens and grounds that are excellent birding spots. In Jamestown, the site of the first permanent English settlement in the New World, wildlife-watchers can follow a paved seven-mile loop through the historic site, and explore the adjacent Colonial National Historical Park at the river's edge. Nearby is Williamsburg, a showcase of Colonial restoration that draws thousands of visitors yearly to enjoy interactive and hands-on exhibits.

The wildlife trail will crisscross several self-guided autoroutes that follow historic Civil War marches through Virginia. Visitors can see wildlife on the trail and also follow Robert E. Lee's retreat from Germanna Ford in Northern Virginia to Petersburg. Between the James and York rivers, the wildlife trail will generally follow the autoroute that traces General George McClellan's unsuccessful attempt to capture Richmond during the Peninsula Campaign.

In Richmond, the old Confederate capital, there are many vestiges of the Civil War. Here one can also visit the James River Park system and the Canal Walk where a wide variety of wildlife can be observed, including beaver, mink, and even bald eagles. There are also several historical sites that focus on black history and present-day Afro-American cultural contributions. A wildlife watcher could stroll along the city's tree-lined Monument Avenue, dotted with statues of Confederate icons and a tribute to hometown hero and tennis legend Arthur Ashe.

Several theme-park attractions

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will tempt wildlife-watching families. North of Richmond, along Interstate 95, they'll find King's Dominion, and not far from Williamsburg, along Interstate 64, are Busch Gardens and Water Country, USA. Along with exceptional wildlife sites in Northern Virginia, visitors will find many national monuments, museums, and tourist attractions in the metropolitan area. Each of these sites have grounds that harbor butterflies and birds, as well as nearby parks and refuges, great for viewing shorebirds, waterfowl, deer, and wildflowers.

©Dwight Dyke

Birding and Wildlife-Watching along the Coastal Plain

While the wildlife trail will emphasize birding, it will also focus on Virginia's ecological diversity. The range of wildlife for visitors to see is immense: from freshwater mussels to wild ponies. There are nearly 4000 native plant and animal species in Virginia. Over 150 different butterfly species can be seen in the Commonwealth, as well as many species of moths and dragonflies.

Driving Virginia's byways and hiking throughout the state, wildlife-watchers will encounter quite a range of wildlife, including deer, red foxes, minks, skunks, and even black bears. The elusive bobcat is sometimes spotted by the alert wildlife-watcher. At several parks and refuges hikers can see wild ponies and feral pigs, remnants of human settlement, as they ply the pathways.

Virginia's Birding and Wildlife Trail initially will cover the area east of Interstate 95. Sites will occur along the coast from Chincoteague, on the Eastern Shore, southward to the Great Dismal Swamp and False Cape State Park. Other sites will occur in Northern Virginia and out along the upper, middle, and lower peninsulas. In years to come, the Virginia Birding and Wildlife Trail will be statewide.

Over 200 nominations have been received from community groups and individuals throughout the state for the Coastal Trail (visit our Web site **www.dgif.state.va.us** for a listing of nominated trail sites). Selected sites will have habitats that support a wide range of wildlife, or are natural settings that sustain and protect unique flora and fauna. Both

©Dick Dickenson

Wild ponies and great egrets are only a few of the numerous wildlife species found at Chincoteague National Wildlife Refuge.
©Dwight Dyke.

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***Above:** Birdwatching at Norfolk Botanical Gardens. **Right:** The black-throated green warbler* (Dendroica virens) *is a frequent visitor along Virginia's coastal region and Back Bay National Wildlife Refuge.*

public spaces and private lands will host trail sites, as long as accessibility to visitors is assured.

Showcasing Virginia's Wildlife

Virginia's Birding and Wildlife Trail will have ample sites that rank high in natural beauty and have habitats that support abundant wildlife: Chincoteague and Great Dismal Swamp refuges, Kiptopeke and False Cape State Parks, and Huntley Meadows Park come to mind. For instance, Chincoteague National Wildlife Refuge is one of the most heavily visited refuges on the East Coast, and is a primary vacation destination to see waterfowl, shorebirds, and small Asian sika deer. A local citizens group is currently spearheading fund-raising for a new visitor center, which should help make the refuge a mid-Atlantic showcase. Chincoteague, a certainty for the VBWT, is a perfect northern trailhead for wildlife watching on Virginia's Eastern Shore.

At the southern tip of the Eastern Shore, both Kiptopeke State Park and Eastern Shore National Wildlife Refuge attract many wildlife-watchers. At Kiptopeke, the Central Virginia Wildlife Observatory conducts butterfly and dragonfly research as well as hawk watches, bird-banding, and migratory studies. Just offshore, the Chesapeake Bay Bridge-Tunnel islands have drawn a host of unusual birds over the years. Birders flock to the four man-made concrete islands in the winter to see large numbers of waterfowl, and to appreciate odd migrants that make brief appearances.

At the edge of Portsmouth, the Dismal Swamp National Wildlife Refuge is a hotspot high on every Virginia birder's list of favorites, especially during spring migration. George Washington organized a land company in 1728 to drain and log the swamp, and a network of ditches was dug from Lake Drummond, at the swamp's center outward to the surrounding forest and farmlands. The vast swamp remained nearly impenetrable then, and is still so except for pathways along some ditches.

The dense vegetation contains an amazing range of wildlife, including deer, gray fox, mink, and bobcat. Several hundred black bears make their homes in the swamp, as well as 18 species of non-venomous snakes. The high forest canopy, small open meadows and thick brush and vines make a perfect habitat for migrating and nesting songbirds.

Walking along the towpaths, wildlife-watchers will encounter a myriad of butterflies and birds. But, it's the warblers that draw the springtime visitor who may even find, or at least hear, the elusive Swainson's warbler or a rare race of the black-throated green referred to as Wayne's. Clearly, this is one of the best sites in the mid-Atlantic to view spring migration—particularly those colorful warblers.

Huntley Meadows Park in Northern Virginia is famous for thrilling wildlife-watchers with opportunities to see birds and animals up close. The boardwalk takes visitors across wetlands and a large pond where several species of rails can easily be seen. Spotting red-headed woodpeckers and bald eagles overhead is commonplace, and Mississippi kites are frequent visitors. The park has a vibrant nature center with many ongoing educational programs. Eventually, every keen birder makes a pilgrimage to Huntley Meadows.

©Rob & Ann Simpson

A number of sites along the trail are less familiar to most birders and wildlife-watchers, still awaiting discovery. Henricus Historical Park/ Dutch Gap Conservation Area, near Hopewell, and the James River Park System, in Richmond, are a birder's

paradise during spring migration. Cumberland Marsh, near New Kent, a preserve of The Nature Conservancy, and Sunken Meadow, near Claremont, are two relatively unknown areas that are typical of the nominated sites. These and many more unfamiliar sites are destined to become favorites of visitors along the wildlife trail.

To supplement the network of trail sites, three nature festivals that showcase Virginia's diverse wildlife during different seasons can become vital links in the trail. Held each October for nearly a decade, the Eastern Shore Birding Festival is a premier wildlife event in the state. In the Richmond area, "Great Blue Heron Days" debuted this spring, and "Birds and Blooms" is scheduled for spring 2001 at the Norfolk Botanical Gardens. As a part of the trail, the three festivals will be important attractions to help assure the success of wildlife watching in Virginia.

The Trail's Promise of Eco-Tourism and Conservation

It's not difficult to understand the potential financial payoff for local communities and businesspeople that participate in the wildlife trail. Eco-tourism has become a popular business sector nowadays because wildlife-watchers are typically "low-impact" tourists who are careful not to adversely affect the environment, and who spend freely to enjoy their pastime.

Wildlife trails and festivals ultimately create broad-based, community-level support for the protection of wetlands and other wildlife habitats. In the end, they promote conservation and preservation by reinforcing local support of eco-tourism and broadening the environmental constituent base. By creating a wildlife trail and promoting eco-tourism we guarantee a legacy of conservation for the future of our wildlife and citizenry.

Not long ago, VDGIF's Whitehurst led a delegation of local economic development and tourism leaders on a visit to the Great Texas Coastal Birding Trail during the Texas Tropics Nature Festival. Time spent with trail and festival staff provided many insights and valuable advice from the architects and pioneers of eco-tourism in the Southwest. The lessons learned on the Texas trail will assure Virginia's own successful venture.

"There's a lot of work ahead to make our trail a success," stresses Whitehurst. "Each of the nominated sites has to be visited and evaluated, and the actual routes of the trail need to be laid out. We'll need to design a trail map that has enough information to get visitors to their destination but is small enough to be handy." The tasks seem daunting at this early phase of the trail: arranging for site parking, beautification, and user-friendly signage.

It took nearly eight years to complete the Great Texas Coastal Birding Trail. Whitehurst hopes that his many statewide meetings with community leaders and wildlife supporters over this past year has created the momentum to put the Virginia project on a fast-track.

"We'll be working on the coastal section first," says Whitehurst, "but there are a lot of factors that affect timing and when things get done." It's clear that there are several years ahead of planning, decision-making at the community level, and site development.

Virginia's Birding and Wildlife Trail are just down the road—and, it'll certainly be worth the wait. It's a venture with an economic payoff for local communities, with the long-term benefit of protecting and conserving wildlife habitats throughout the Commonwealth. ☐

Jerry Uhlman is a wildlife and nature writer for the Richmond Times Dispatch *newspaper.*

Ruby-throated hummingbird (Archilochus colubris)

©Dick Dickenson

Virginia's Birding and Wildlife Trail's Economic Impact

To understand the potential economic impact of a wildlife trail to Virginia communities, it's helpful to look at the Texas experience. The trail, completed in early 2000 after eight years of development, has been a windfall for communities along the Gulfcoast and Rio Grande River. Recent surveys conducted by Fermata, Inc. have compiled some impressive financial data.

Travelers on the Texas trail devoted an average of 31.23 days per year to birding along the trail route. Their most recent trip lasted 8.7 days and 7.5 nights, and their travel-related expenditures totaled $881.80 per person ($683.91 within the region, $197.89 within Texas but out of the region). Trail travelers averaged expenditures of $78.52 per person, per day.

The vast majority of travelers (95 percent) lived outside of the region, and wildlife-watchers visited from every state and many foreign countries. Data gathered from travelers show that they averaged $2,452.18 in direct expenditures in the communities along the birding trail during the past 12 months.

A closer look at one particular community shows what the above data can mean to a local economy. McAllen, located near the Rio Grande River in south Texas, has a population of 84,000 and is blessed with a number of terrific birding hotspots nearby. According to Chamber of Commerce surveys, 927 jobs were created by the local wildlife-watching industry. It's estimated that lodging taxes generate $409,390 and sales taxes bring in $1,989,250 annually—directly attributable to wildlife watching. McAllen's Texas Tropics Nature Festival, a local 4-day birding festival, yielded roughly $426,000, primarily from 300 visitors to the area.

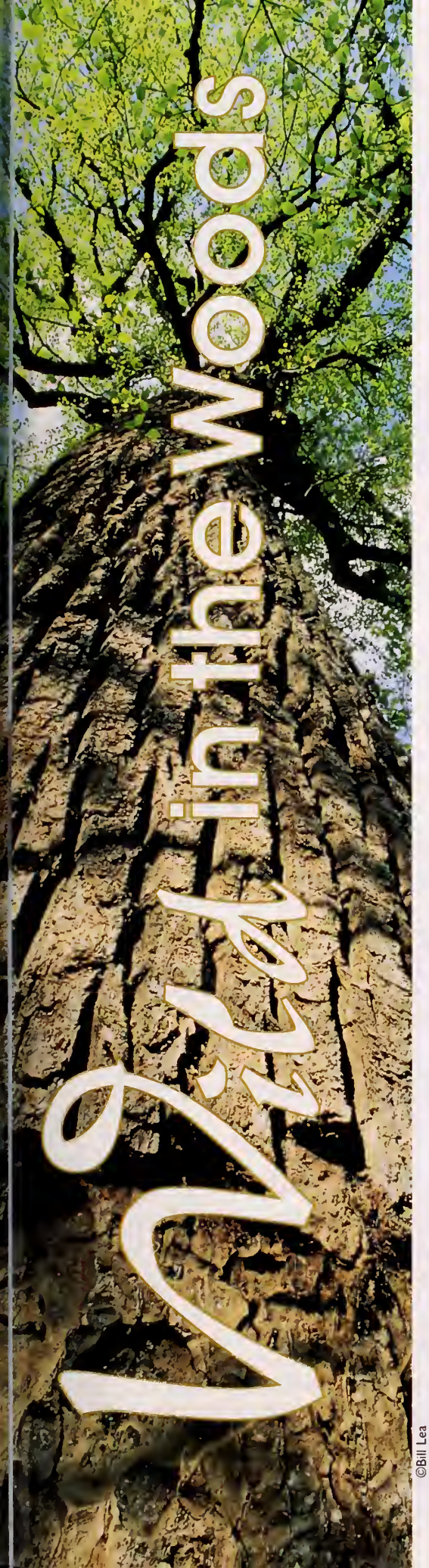
A Virginia birding and wildlife trail will surely generate eco-tourism dollars for many wildlife-rich communities that now struggle to attract visitors. Although it's impossible to project the potential payoff to Virginia, VDGIF's David Whitehurst thinks that, based on Texas' experience, it should be "very significant."

©Dwight Dyke

Above: *While traveling along Virginia's Birding and Wildlife Trail wildlife watchers will also have a chance to visit historical sights like the statue of Civil War General Robert E. Lee in Richmond and the Colonial Williamsburg area.*

Bald eagle, ©Maslowski Photo

©Dwight Dyke



©Bill Lea

Virginia's Black Bear

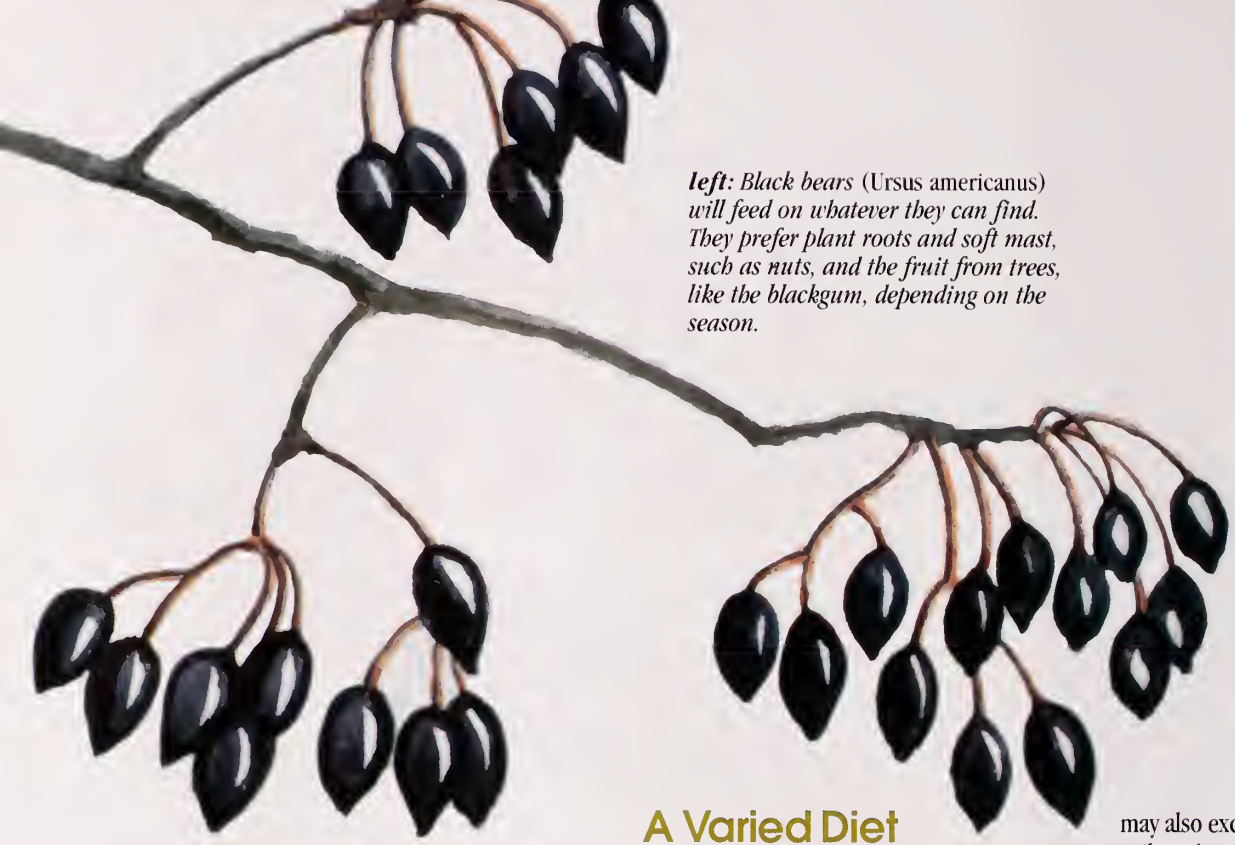
by Carol Heiser and Sally Mills
illustrations by Spike Knuth

Stories and legends of bears' supernatural and healing powers have captured the imagination of people throughout history. Even today in the 21st century, some Asian cultures believe that certain bear parts can act as an aphrodisiac or cure diseases, such as epilepsy.

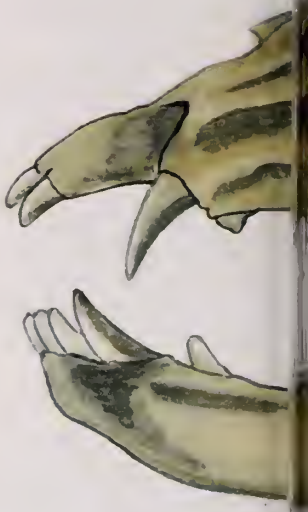
Of the three different bear species found in North America, black bears are the most abundant, and they are the only bears found in Virginia. The black bear population in Virginia is a healthy 4,500-5,000. It is a popular big game species and with a valid hunting license bear hunting is allowed in Virginia's western counties during the posted season .

The Forest Home

Deciduous forests are the favored home of black bears, and bears occur throughout the Blue Ridge Mountains, as well as in the Great Dismal Swamp in southeast Virginia. Unfortunately, as more forested land is whittled away for home and road-building, the amount of suitable bear habitat continues to decrease. And because young males tend to roam large dis-



left: *Black bears* (Ursus americanus) *will feed on whatever they can find. They prefer plant roots and soft mast, such as nuts, and the fruit from trees, like the blackgum, depending on the season.*



tances in the spring, encroachment on forest habitat by development can lead to bears showing up in some rather strange places, like downtown Charlottesville, Richmond, or Chesapeake. Black bears are not aggressive animals, but should you encounter one, don't run. Instead, make noise and stand tall.

A Varied Diet

Reaching average weights of 120 pounds for females and 220 pounds for males, a black bear is built to succeed in the forest. Its large nose gives it a keen sense of smell, able to accurately zero in on a wide variety of food sources. A black bear is an *omnivore* and an *opportunistic* feeder, which means that it feeds on whatever it happens to find, depending on the season of the year, and it may consume rodents, insects, and carrion on occasion. As a result, it has sharp canines to rip apart meat, and rounded molars with crushing surfaces on the crowns to chew plant material.

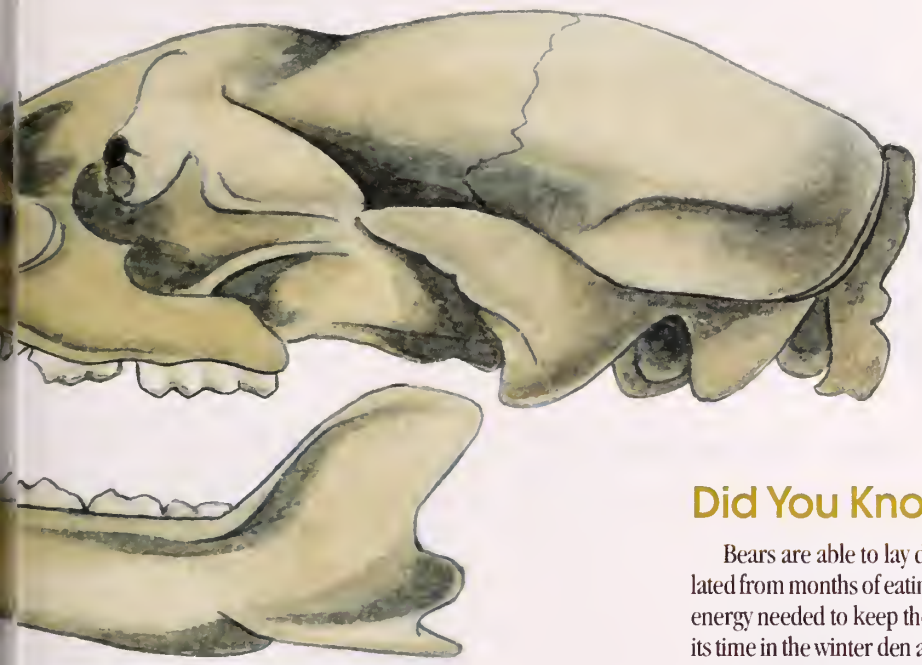
During the spring, bears consume primarily grasses and forbs, and in summer they feed primarily on vegetation in the form of plant roots, tubers, and soft *mast,* such as fruits and berries. Bears sometimes get into bee hives and raid corn fields in late summer, before acorns have dropped. During the fall, when bears are putting on weight for the winter, they primarily consume acorns and hickory nuts, which are high in energy from carbohydrates and fats.

New Life

Biologists have discovered that about 85 percent of bear dens are found in dead, hollowed trees; the telltale signs are claw marks around the base of the tree. Bears may also excavate a small den cavity in the soil on the side of a hill, use a thicket or a pile of brush as a kind of "nest," or seek out an opening amid large rocks and squeeze between them. Female bears breed in late June to early August, but the fertilized egg is not implanted till December. Consequently, a sow does not give birth until late January or early February while hibernating alone in the den. The two to three cubs are like small kittens, only six to nine ounces in size, and just as helpless without the ability to see, smell, or hear. Bears emerge from the den between mid-March to early May, when the cubs are almost four pounds, fed on mother's milk. Cubs stay with the sow during their entire first year and enter the den with her again as yearlings. They do not leave the sow until they are 18 months old, when she is ready to breed again.

Bear Behavior

Scientists in Virginia are learning many intriguing facts about how bears live. By using a variety of tracking methods, such as *radiotelemetry* (radio signal) collars, a scientist can monitor black bear behavior and gain a better under-



Left: *The population of black bears in Virginia is estimated to be between 4,500-5,000. Male bears are much larger than females and weigh an average of 220 pounds.*

Did You Know?

Bears are able to lay down a thick layer of fat underneath their skin, accumulated from months of eating foods rich in fat and protein. This fat layer provides the energy needed to keep the bear warm during winter, when food is scarce. During its time in the winter den a bear spends its days in a sleep state. Its heart rate, respiration, and body temperature drop. But unlike other hibernators, black bears can awaken during this winter sleep and are known to venture out during periods of relatively warm weather.

standing of which natural areas, or habitats, it uses from day to day. Out in Rockingham, Augusta, Montgomery, Craig, and Giles counties, wildlife biologists, like Dennis Martin with VDGIF, have been tracking black bears since 1994 to acquire baseline information about the hunted population. They hope to learn more about the bear's life history, denning behaviors, and about cub and yearling survival. A total of 1,300 bears have been captured or recaptured since the program's inception!

Chubby

Highbush blueberry (Vaccinium corymbosum) *is a favorite food of black bears.*

(adapted from *Arkansas Black Bear: A Teacher's Guide for Kindergarten through Sixth Grades,* by Goad, Knighten, and McClure; Project WILD-Arkansas Game and Fish Commission.)

The ability to build up fat reserves is an important adaptation that is crucial to the black bear's survival over the winter months. The following student activity is a simple experiment that demonstrates how fat works as an insulator.

Materials

- 2 gallon-size zip-closure plastic bags
- Lard, Crisco, or other solid shortening product
- 2 rubber gloves that will fit up over the wrists (such as dishwashing gloves)
- Tape
- A large dishpan or a cooler of ice water (large enough for a student to put both hands in at the same time)
- Stopwatch or a clock with a second hand

Advance Preparation

Fill one zip-closure bag 2/3 full with lard. Put your hand into one of the gloves, and then put your gloved hand into the lard-bag. Tape the glove in place where it meets the bag at top, and seal the open portions of the bag with tape so that the only opening is where your hand will go in and out of the glove. Tape the other rubber glove into the other empty zip-closure bag. Lastly, fill the dishpan or cooler with ice and water.

Procedure

(This can be done as a demonstration in front of the class, or you can set it up as a station for all students to take turns at.)

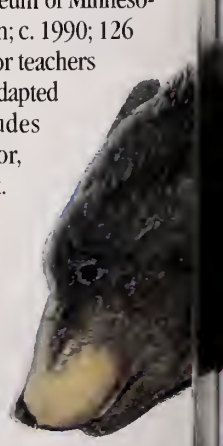
Have one student get a partner who will keep time and record observations. Have the student put a hand into the glove in the bag with lard, and put the other hand into the glove in the bag with no lard. The student then places both bags with hands into the ice water, at which point the partner starts keeping time. The student doing the experiment keeps both hands submerged until the hand in the bag without lard gets so cold that it must be removed. When that hand is removed, the timekeeper notes the time. The student keeps the other hand in the bag with lard in the ice water for as long as possible, until the hand finally starts to feel uncomfortably cold. When this hand is finally removed, that time should also be noted.

Discussion

Compare the different times recorded by different pairs of students. Discuss which hand stayed warmer in the experiment, and why. Explain that heat energy moves away from a warm area to a cooler area, and as the energy is lost, such as from warm skin, the temperature of the skin becomes cooler. Insulators are materials that slow down this transfer of heat. In mammals (and in migratory birds), fat beneath the skin acts as an insulator because it restricts the flow of heat away from the warm body to the cold air outside the body. A thick coat of fur (or feathers) also acts as an insulator, because the dense hairs trap air which keeps the animal's warm body heat next to its skin.

Bear-y Good Resources

- *Bears: Imagination and Reality—an Educational Resource for Teachers,* prepared by the Science Museum of Minnesota, School Services Division; c. 1990; 126 pp. This guide is written for teachers of grades 4-6 but may be adapted for other levels. It includes activities on bear behavior, natural history, and habitat. Contact Science Museum of Minnesota, St. Paul, MN at 1-800-221-9444 ext. 4747.

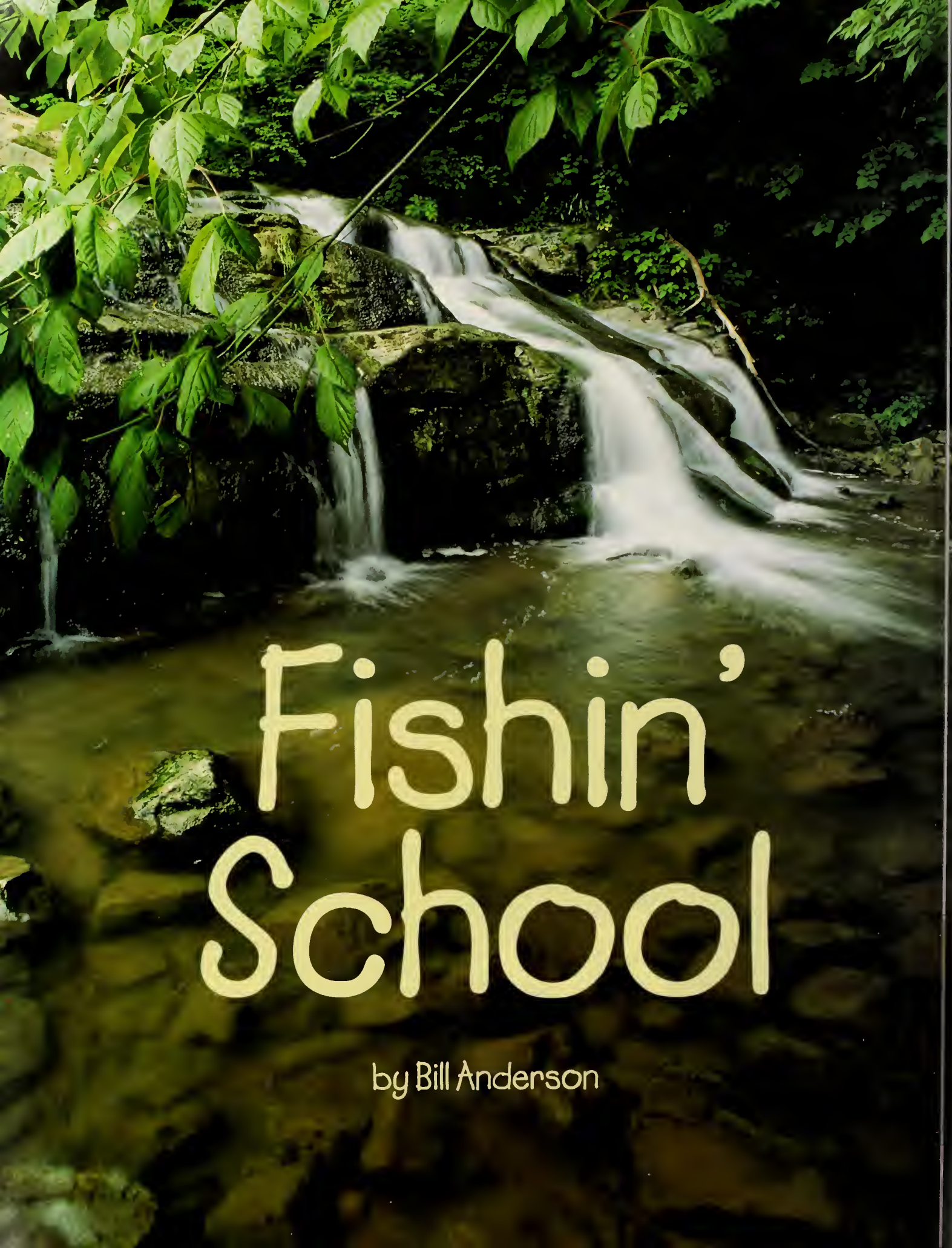


- *The Wonder Series: The Everywhere Bear,* by Sandra Chisholm Robinson; c. 1992, co-published by Denver Museum of Natural History and Roberts

Warmth Activity

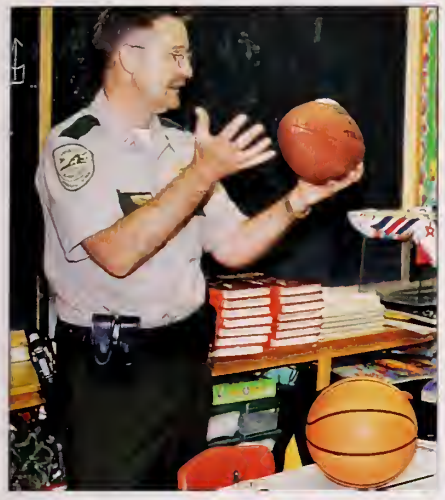
Rinehart Pub.; 64 pp. This contains stories and activities written for kids aged eight to 12; teachers will also find it useful in the classroom. Available from the publisher, Roberts Rineholt, Boulder CO 1-800-352-1985.

● Additional black bear information and activities suitable for teachers and other educators is available from the wildlife education office at the Virginia Department of Game and Inland Fisheries in Richmond.
Contact Carol Heiser at (804) 367-6989 for more details. □



Fishin' School

by Bill Anderson



Like a mysterious veil, the early morning mountain fog that hung high above Russell County's Cedar Creek had mostly dissipated by the time 150 excited youngsters came bounding from the three large yellow school buses.

They were ready to fish!

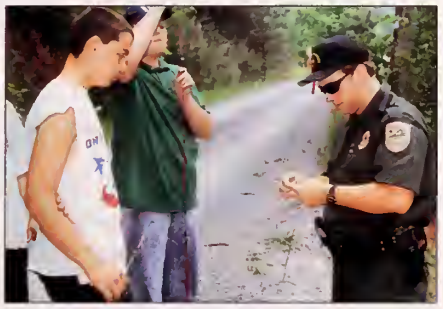
This was not a spur-of-the-moment excursion, but rather the culmination of weeks of anticipation. Today was the big day for these sixth and seventh graders, many of whom had never before fished.

For the past few years, Lieutenant William Rose with the Virginia Department of Game and Inland Fisheries (VDGIF), aided by various game wardens, has taught classes in Ervington Elementary (Dickerson County), Lebanon Middle and Elk Garden Elementary schools (both in Russell County) about, of all things, fishing.

Only after hours of instruction on regulations, sportsmanship, and the art of spinner fishing, the students are bused to appropriate trout streams where they will, hopefully, catch and release rainbow and brookies for the next four or five hours.

On one of the days I visited Elk Garden School, I was invited into the school's science room, where Lieutenant Rose held some two dozen students spellbound with his talk of fish and fishing.

It was quite easy to fall into a world of wildlife and nature in Karin Starnes' classroom. The wildlife and fish pictures that covered the walls quickly led one to believe that natural science was a major study here.



Without the cooperation of teachers and principals there would be no fishing school. Mrs. Starnes had previously explained that she is an avid angler, and that Principal Nita Musick has a generous appreciation for outdoor sports.

"You may use worms, cheese, salmon eggs or other bait," Lieutenant Rose explained. "We've tried spinners and other artificial lures, but they just won't work with so many of you all out there." And,"This is a one shot deal, we'll go, rain or shine. Don't wear your $100 shoes and designer clothes. You are going to get wet, and you will get muddy."

Using a football and a basketball as props, Rose explained the differences in fishing and other sports, and the reasons for different shapes of fish.

One of the last lessons was casting practice in the Elk Garden schoolyard. Tackle was provided by Lieutenant Rose, courtesy of the Department of Game and Inland Fisheries.

Big Cedar Creek is a part of the Pinnacles Nature Area, and is a tributary to Clinch River. Clinch is famous for its bass, rock bass, walleye, and musky fishing. Unlike the Clinch, Big Cedar is a stocked trout stream. Both Big Cedar and Clinch are a part of the Clinch River Bioreserve. Both streams are famous for their natural beauty.

Above left: *Lieutenant William Rose, with the Virginia Department of Game and Inland Fisheries, along with other game wardens, like Troy Phillips (above), and teachers, such as Karin Starnes (right), have helped to bring the pleasures of fishing to hundreds of students in Southwestern Virginia. Photos by Bill Anderson.*

©Dwight Dyke

But, I'm afraid the beauty of Cedar was somewhat lost on those students in their quest for large or small trout. Before the stocking truck arrived, they were already trying for trout, redeyes, or whatever would bite. Some were more interested in getting their feet wet—or muddy.

As I observed, I was impressed that most students were willing to share bait or to help a less knowledgeable friend. In the event the students couldn't solve their own problems, there were game wardens, teachers, and volunteers available. There must have been a "helper" for every four or five anglers. Often they weren't needed.

The youngsters seemed to not mind that the trout must be released. "After all," one lad reminded me, "We fish for fun. These fish will be left for another day."

In their "fishing school," as one student termed it, these 12 and 13-year-olds were learning more than about a sport that they may enjoy the rest of their lives. Here on the banks of Big Cedar Creek and in the classrooms at Elk Garden and Lebanon, I could see some of the building blocks that make up each young life coming together.

What I saw was good.

Each child was enjoying the outdoors in his or her own way. For some, there were two or three person picnics at the edge of the creek or some other nearby place. Other students didn't want to stop fishing long enough to eat. Some couldn't resist getting their feet into the cool clear water of Cedar Creek.

Almost everyone caught fish. A few didn't. Girls sometimes screamed in glee when they caught a trout. Boys were excited and jubilant.

Their time on Cedar Creek ended too quickly for most students. As the sun slipped closer to the mountain horizon, someone signaled that it was time to go.

Personal items were stashed into the school buses and fishing tackle was stacked near a VDGIF vehicle for loading.

Above: *An Elk Garden student gets a helping hand tying on a fishing hook.*
Below: *Some students took advantage of Big Cedar Creek's, clear pristine waters, to cool off while on the angling adventure. Photos by Bill Anderson.*

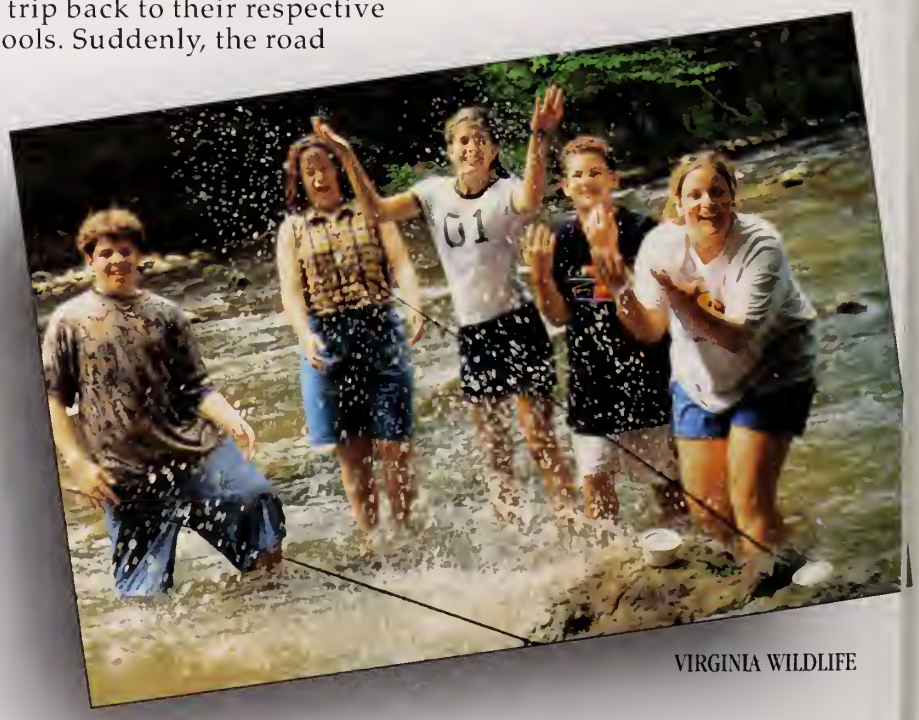
The last thing to attend was cleaning up the stream banks. Surprisingly, the students had discarded very little litter. The young anglers filled the road that parallels Cedar Creek, then dispersed to find and bag any and all litter. They gathered each minute piece of trash no matter if it was their's or had been left yesterday by some thoughtless hiker or angler. They even pulled a tangled fishline from tree branches.

At the end, they loaded back into the buses that had brought them for the trip back to their respective schools. Suddenly, the road and creekbank was empty and quiet.

Those 150 students were taking away with them more than they had brought—experiences, skills, and memories they had gained in Fishing School that would endure forever.

Then I had another joyful thought, this time next year classes of youngsters would follow this same trail, as their building blocks of life are created. ☐

Bill Anderson is an outdoor writer and for over 30 years has written for various weekly newspapers and national magazines.



Journal

Game Warden Lieutenant Steve Pike presents 12-year-old Alden Pullen with a free lifetime hunting license donated by the Fredericksburg Chapter of the Moose Lodge

A Lifetime Winner

Congratulations to 12-year-old Alden J. Pullen, of Culpeper. He was the lucky winner of a lifetime hunting license given away at the fourth annual Outdoor Field Day September 2, 2000.

The Virginia Department of Game and Inland Fisheries' (VDGIF) Outdoor Education Program in cooperation with the Cedar Mountain 4-H Shooting Sports Club, held the Outdoor Field Day in the shadow of Cedar Mountain, just south of Culpeper. The event was free and open to the public, and it was designed to introduce individuals and families to a variety of outdoor recreational opportunities. Activities included survival skills, compass games, waterfowl and turkey hunting techniques, retriever handling demonstrations, youth trout fishing, supervised shooting opportunities, and exhibits by VDGIF's Law Enforcement and Wildlife Diversity divisions.

Through the generosity of local merchants and volunteers, numerous gifts were given away to many of the young adults who attended this years event. The grand giveaway being the choice of a lifetime hunting or fishing license donated by the Fredericksburg Chapter of the Moose Lodge. □

Murrays New Book is Blue Ribbon

by King Montgomery

Virginia Blue-Ribbon Streams: A Fly Fishing Guide,
by Harry Murray,
Introduction by Lefty Kreh,
Frank Amato Publications, Inc.
96 pages,
Softbound $24.95
Hardbound $34.95

I like this guidebook. It is nicely written, with excellent photos throughout; it packs a lot of valuable information into 96 pages. Murray covers 34 of Virginia's best trout streams and nine of the best bass streams. Although it is too big to fit in your fly vest, the information it contains will go with you anywhere. And the quality of the publication, with its beautiful color photography, means it will compete for space on your coffee table as well as in your car.

The book is laid out stream by stream. Murray details the geography, the fish, where and how to fish them, productive flies and their presentation, access and boat river landings, and established bed and breakfasts, motels, and campgrounds. Murray only mentions those accommodations that have been in business for a long time and that he personally knows.

Harry told me he did not cover a few of the best trout stream, both in and out of the Shenandoah National Park, because, according to the biologists who oversee these streams, they are too fragile to withstand additional fishing pressure. A tough decision for a writer, but one reflecting, in my opinion, good sense and great angling ethics. I would expect nothing less from Harry Murray.

For more information or to order, call Murray's Fly Shop, at (540) 984-4212 or see his Web site at www.murraysflyshop.com; or contact Frank Amato Publications, Inc. at (503) 653-8108 or visit www.amatobooks.com. □

Write On Target

With hunting season in full swing and the holidays upon us, it can be real easy to forget that your fishing license expires December 31, 2000. Every year, people call trying to find how to obtain new fishing licenses to be used as stocking stuffers or Christmas presents.

Another wonderful holiday gift is the giving of a lifetime hunting and fishing license. You can obtain the application from any license agent or you can request one via the Internet by contacting us here at WriteOnTarget. Non-residents who wish to purchase licenses in advance of their trip to the Commonwealth can download the mail-in application (PDF format) at the following web address: **http://www.dgif.state.va.us/licensing/non-resident_license_form.pdf**

If you need assistance in locating a license agent in your area, we can help you. Either phone or email

us with the county/city where you are located and we can supply you with a list of the license agents in your area.

We wish you all a safe holiday season and look forward to assisting you as we enter the next millennium.

Have a question? Need a regulation clarified? Need to know more about what the Department does? Send your question or inquire to:

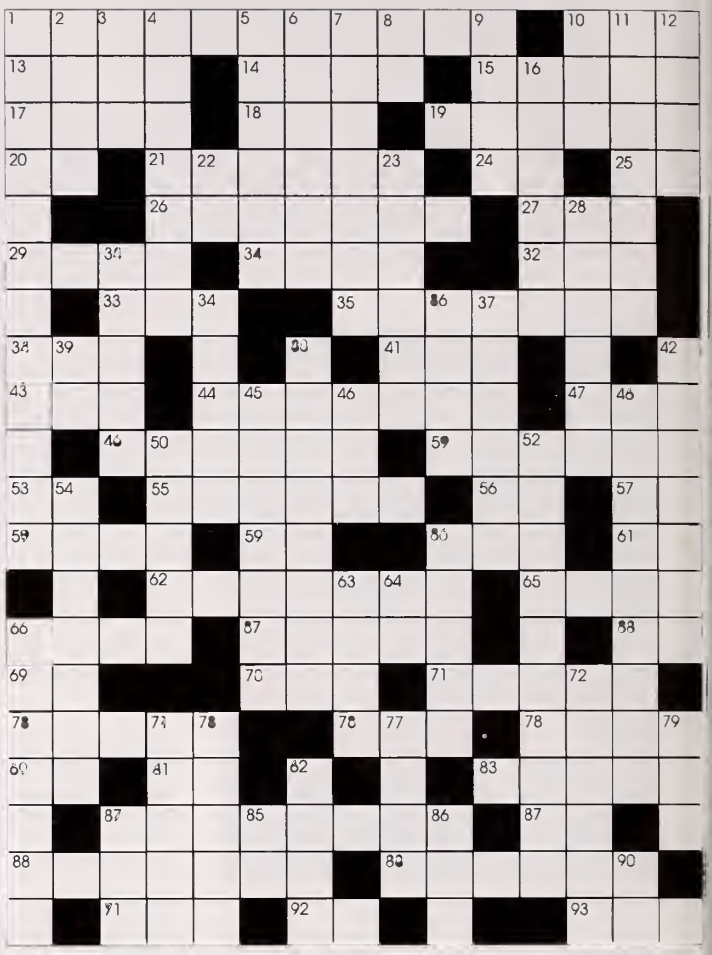
WriteOnTarget
P. O. Box 11104
Richmond, VA. 23230-1104

You can reach us by calling (804) 367-9369 or via email at WriteOnTarget@dgif.state.va.us. Your question could appear in a future issue of *Virginia Wildlife*. ☐

Report Wildlife Violations
1-800-237-5712

The "Byrd's Nest" Crossword Puzzle

Test your outdoor knowledge and identify over 25 fish and wildlife clues as well as five of Virginia's official symbols—complements of Marika Byrd. [Answers in February 2001]



ACROSS

1 Virginia's state butterfly, Tiger_____
10 Open (poetic)
13 Eastern, hairy tailed, star nosed small game
14 SW France city/capital
15 Harnessed or joined animals
17 Margarine spread
18 Environmental Protection Agency (abbr.)
19 Infuriate, incense
20 Derived or coming from
21 Sworn game wardens (group)
24 11 (Roman numeral)
25 Indefinite article
26 Bombastic speech
27 Organization of American States (abbr.)
29 Mend or restore
31 Gratuities
32 Lousiana State Univ. (abbreviation)
33 Next day service (abbr.)
35 Math sets contained within a set
38 Advanced in age
41 Egg mass of certain crustaceans
43 Avail oneself toward
44 Baby eagles
47 Actinium plus Oxygen (symbols)
49 Prawn
51 German prisoner-of-war camp
53 Driver education (abbr.)
55 Class of chemical compounds obtained by replacing hydrogen atoms in ammonia
56 Elevated railway
57 Rwanda (abbr.)
58 Eurasian duck or merganser
59 Long neck (abbr.)
60 East coast ocean (abbr.)
61 To perform or execute
62 Folder, presser, stretcher (person)
65 Private, personal, separate (prefix)
66 Measurable (abbr.)
67 Vapor, gas, or fume
68 North Dakota (abbr.)
69 Arkansas (ZIP code abbr.)
70 Kind of bass (fish)
71 Am. Indian people of NE Nebraska
73 Left of sunrise (direction)
76 Nuclear magnetic resonance (abbr.)
78 Tall fish story
80 Arrive or arrival (abbr.)
81 Do, ___, mi, (diatonic scale)
83 Parallel beam in ceiling or floor
84 Virginia's state dog
87 Right Reverend, railroad (abbr.)
88 Edward (alternate spelling)
89 Twilled woolen fabric used for coats.
91 Estimated time of departure (abbr.)
92 Suffix variation of OLE
93 Double (abbr.)

DOWN

1 Food fish, shark, (plural)
2 *Canis lupus*, red or grey mammal
3 Stout beer, lager
4 Father of wildife management
5 *Felis pardalis*, (US wildcat)
6 Elk
7 Hold tea (plural)
8 Actinon, chemical symbol(abbr.)
9 Wildcat
10 Russian river
11 Winged horse (Greek mythology)
12 Garden; paradise
16 Baltimore team member
22 West coast state (abbr.)
23 To make certain or sure
28 Star shaped; stellar
30 South American mountain range
34 *Physeter macrocephalus*, whale
36 Ailment in mammals
37 Stanza or poem of six lines
39 Library science (abbr.)
40 Army on march, a throng, or crowd
42 Virginia's state tree and flower
45 Pointless, futile
46 Doctor's aide
48 Virginia's state bird (plural)
50 Bird of prey (plural)
52 Broad snouted, amphibious reptile (plural)
54 Fish, butterfly, moth, or largest penguin
60 Protective covering on certain animals and insects
63 College official
64 Each or educational age (abbr.)
66 Sea cow
72 Short _____(breed of dog)
74 Virginia's state fish: Brook _____
75 Group of six
77 Fur or mammal
79 French season
82 Extinct, large flightless bird (Mauritius Island in Indian Ocean)
84 Adversary or rival
85 House of Representative (abbr.)
86 Drug Enforcement Administration (abbr.)
90 Symbol for Ytterbia (abbr.)

RECIPES

by Joan Cone

How to Use Pheasant Thighs and Legs

When the hunter returns home with pheasants from Virginia preserves or from states where they are hunted in the wild, do not discard the thighs and legs. Take your kitchen shears and remove the breasts from the backbone. After wrapping well, freeze these breasts for later use. Now remove the thighs and legs, cutting off the latter from the thighs. Save the legs until you have enough for making pheasant stock.

Pheasant thighs are my favorite, as they are moist and flavorful. Preparing these in a crockpot, as in the following recipe, will delight you and your family.

Menu

Healthy Spinach Dip
Crockpot Italian Pheasant Stew
Walnut-Orange Salad
Eggnog Custard Pie

Healthy Spinach Dip

1 box (10 ounces) frozen chopped spinach
3 tablespoons grated Parmesan cheese
3 tablespoons ranch dressing, low fat or regular
½ cup sour cream or plain yogurt
½ teaspoon dried basil
Garlic powder to taste

Cook spinach according to package directions; drain well and chill. Combine all ingredients in a bowl and mix well. Serve chilled with assorted crackers or garlic toast. Makes about 1¾ cups.

Crockpot Italian Pheasant Stew

8 to 10 skinless pheasant thighs
1 can (14.5 ounces) diced tomatoes with Italian herbs
2 cups cubed zucchini
1 cup fresh pearl onions, peeled
1 cup fresh baby carrots
2 tablespoons tomato paste
2 cloves garlic, minced
1 tablespoon sugar
½ teaspoon crushed red pepper flakes
Salt to taste
4 cups cooked pasta

Place pheasant thighs in bottom of crockpot. Combine remaining ingredients, except pasta, and mix well. Cover crockpot and cook on LOW setting for at least 6 hours or until thighs are tender and internal temperature reaches 180°F. Serve stew over hot, cooked pasta. Makes 4 servings.

Walnut-Orange Salad

¾ cup walnut halves or pieces
1 small red onion (optional)
2 oranges
1 head red leaf lettuce
2 tablespoons olive or vegetable oil
1 tablespoon orange juice
1 tablespoon lemon juice
1½ teaspoons Dijon mustard
¼ teaspoon dried basil
Salt and pepper to taste

Toast walnuts at 375°F. on a baking sheet in a preheated oven for 5 to 8 minutes, stirring occasionally. Meanwhile, cut the onion into very thin slices. Peel the oranges, removing as much of the bitter white pith as possible. Separate the oranges in half lengthwise and then cut the oranges crosswise into thin half-moons. Tear the lettuce into bite-size pieces. In a small bowl, combine the olive oil, orange juice lemon juice, mustard, basil, salt, and pepper. In a medium bowl, toss the walnuts, onion, and oranges together. Serve on beds of lettuce with some of the dressing spooned on top. Pass any additional dressing on the side. Makes 6 servings.

Eggnog Custard Pie

4 eggs, beaten
1 can (12 ounces) evaporated milk
¾ cup milk
½ cup sugar
2 teaspoons rum flavoring
¼ teaspoon ground nutmeg
1 deep dish pie crust, frozen

In a medium bowl, beat together eggs, evaporated milk, milk, sugar, rum flavoring, and nutmeg. Pour into frozen pie crust. Sprinkle with additional nutmeg. Bake in a preheated 400°F. oven on a preheated baking sheet 35 to 40 minutes or until a knife inserted in center comes out clean. Cool. Cover and refrigerate. Garnish with whipped topping prior to serving, if desired. Makes 8 servings. □

Wild Backyard

by Marlene A. Condon

Putting Up Birdhouses

The best way to see an eastern screech owl is to put up a birdhouse of the correct dimensions. A screech owl will use the house for roosting during the cold daylight hours of winter.

Winter is a great time to think about making or buying birdhouses and putting them up. The cold weather that makes it easy for you to stay indoors and do woodworking also makes it safer for you to work outside. Bees and hornets may be active around trees and your house during warmer months of the year, so you may get stung putting up birdhouses at that time.

Many species of birds and mammals look for natural cavities in rotted-out sections of trees or make their own excavations in such trees in order to nest. Even if your property is lacking trees where these animals can raise a family, you can still attract many of them to your property if you put up birdhouses. Eastern bluebirds, Carolina chickadees, great crested flycatchers, tufted titmice, gray squirrels, and even southern flying squirrels and eastern screech owls will take up residence outside your house if provided with a suitable place to nest in appropriate habitat. If you see these animals around (or hear screech owls) during the year, your chances of success are quite high.

Top: *Furry visitors, like this southern flying squirrel, will often take up residences in birdhouses.* ***Middle:*** *Birdhouses should be cleaned during the winter months.* ***Bottom:*** *Some birds, like the Carolina wren, prefer nesting on open shelves. Photos by Marlene A. Condon.*

Since each species of bird requires a particular size cavity in which to nest, it is very important that you make or buy a birdhouse that meets these requirements. You must take into account the interior dimensions of the birdhouse, the entrance-hole size, and how high the hole is above the floor of the house. When placing the boxes on trees, you also need to put them at the correct height above the ground. The mammals' preferences overlap with the birds'.

I do not have space here to give all of these parameters, but there are many books available that provide this information, as well as pertinent construction information.

I highly recommend *Woodworking for Wildlife* by Carrol Henderson of the Minnesota Department of Natural Resources. It only costs $9.95 plus shipping and can be ordered at 1-800-657-3757. However, I suggest that you call for a complete listing of books first because Mr. Henderson has written many fine books about wildlife that you may also want to order. ☐

Naturally Wild

story and illustration
by Spike Knuth

White-Winged Scoter

Melanitta deglandi

To hunters along the Atlantic Coast, especially in New England, the sea duck known as the scoter is called the "sea coot." Scoters are short-necked, big-headed, stocky ducks. There are actually three species that carry the name, the American or black scoter, the surf scoter and the white-winged scoter. The white-winged scoter is the largest and the more southerly of the three.

It is distinguishable from the other two by the flashing white wing speculums. The male is all black otherwise, except for a rounded white eye patch below the eye and extending backward and upward to a point behind the eye. The female is basically dark brownish-gray above, grayish below, with white wing patches at the base of the bill and at the back of the cheeks. The male has an orange, yellow and white bill with a blackish knob where its nostrils are. The female's bill has only a slight swelling at that point and is grayish.

They winter in the east along the Atlantic Coast from Newfoundland to South Carolina, rarely to Florida. Males are the first to show up having gone through their annual molt first. They may start showing up in New England as early as the end of August. The females and the young begin arriving later in October. Those that migrate from the central portions of the United States and Canada, fly at high altitudes. Scoters fly in wedge-shaped formations or irregular columns on migration. They are cold hardy and many stop off on the Great Lakes and may even stay there. A few make surprise visits on smaller inland lakes like Lake Winnebago in Wisconsin.

Whitewings generally spend their time far offshore, however, occasionally they'll come into the bays and tidal rivers to feed. Scoters are good divers and they dive for mussels, crabs, shrimp, aquatic insect larvae and some vegetable matter. They are right at home in rough seas, which do not hinder their feeding. On their wintering areas, they trade back and forth from feeding areas to resting areas, flying low over the water in long lines, single file or in bunches.

Come spring, they head back to the wide expanses of northern United States and Canada, and up to Alaska. They nest in depressions or hollows on the ground, or a crevice in rocks, usually covered with a low-growing willow or spruce. Whitewings are late nesters, completing egg-laying as late as mid- or late-June. The young are large for ducklings and walk erect like penguins. They have to grow fast so they mature enough to escape the cold of Arctic winters. Populations of scoter also inhabit Siberia, the Asiatic Coasts to Japan and China, and the Pacific Coast as far south as Lower California. □

On The Water

by Jim Crosby, Region 4 Boater Education Coordinator

A Boater's Holiday Gift List

Buying a holiday gift for a boater requires some snooping and shopping if you really want to please the recipient with something useful. Space on a boat is always at a premium. The average recreational boater has to be pretty choosy about what goes aboard. To make a useful addition, you really should know what your boater has and what's on their particular wish list. There are a lot of niceties available that just cannot justify the space they occupy and duplicates are generally a waste of time and money. Of course, I don't know many boaters who wouldn't appreciate the gift of a larger boat.

The basic equipment required by law is usually not a good idea because a wise and careful boater will have already acquired the items on that list, however upgrades are a good possibility. For example, if your boater is meeting the carry requirements for personal flotation devices with the least expensive on the market, you'll find lots of room for improvement among the higher quality life jackets available.

The real coup is to go beyond the list of required items to the nice exotics. They make the same difference to the boater that a Red Ryder does over gifts of underwear to the average young lad. To compile a list of gifts that generate the emotional "Oh Gee's" and "Holy Mackerels" I queried a choice group of boaters to make a list of their own for comparison. The input held a few surprises, so I think the list might be of some value.

1. A Global Positioning System (GPS) Receiver was on everyone's list. It was first on one, second on another, third on another and sixth was the lowest on anyone's list.

2. A VHF Marine Radiotelephone was also on everyone's list. It ranged from second, and third to ninth.

3. Binoculars were on nearly everyone's list. Some wanted the kind that has a compass for obtaining bearings.

4. A set of charts was on nearly everyone's list.

5. A First Aid Kit was on nearly everyone's list.

Up to this point, the lists were pretty comparable. Beyond the first five items, the lists became as diversified as the number of respondents. Talk about exotic—how about "a full set of self-updating charts?"

Making a wish list took one respondent into the realm of wishful thinking when "a four-person inflatable dinghy that can be stowed in a shoe box" showed up on his list. I also found "a remedy for motion sickness that will work after you get sick" on the same list. While there is no question about the demand, I think supply might be a problem for both of those items.

Shopping for your recreational boater can be very rewarding when you make the right choice. The gift that will elicit an emotional response of satisfaction is worth a little snooping, shopping, and sentiment.

Happy holidays to one and all! Let's work together to make our boating safe and rewarding in 2001.

For questions or comments, you can reach the author through the Department or via e-mail at jimecrosby@aol.com

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